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A CYCLOPEDIA

OF

DOMESTIC MEDICINE AND SURGERY;

BEING AN ALPHABETICAL ACCOUNT

OF THE VARIOUS

DISEASES INCIDENT TO THE HUMAN FRAME;

WITH DIRECTIONS FOR THEIR TREATMENT,

AND FOR PERFORMING THE MORE SIMPLE OPERATIONS OF SURGERY.

ALSO,

INSTRUCTIONS

For administering the various substances used in Medicine; for the regulation of Diet and Regimen;

AND THE MANAGEMENT OF THE

DISEASES OF WOMEN AND CHILDREN.

BY THOMAS ANDREW, M. D., &c.

WITH CONTRIBUTIONS BY SEVERAL

MEMBERS OF THE ROYAL COLLEGE OF SURGEONS, EDINBURGH.

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PREFACE.

"KNOW THYSELF," is a maxim not less applicable to the physical structure than to the moral constitution of man. If it be necessary to know the rise and tendency of human passions and emotions that we may curb their extravagances and direct them to healthy results, it is equally necessary that we should comprehend the wondrous structure of the human body, and the nature and symptoms of those manifold casualties to which it is exposed; and also obtain information regarding the means by which disease is averted and health restored.

In the present work, which includes a more complete system of *Domestic Medicine*, than had previously appeared, the great objects in view are the prevention, alleviation, and cure of the various accidents and ailments to which mankind are liable. To accomplish these, the most explicit directions are given for performing those ordinary operations in surgery which may be safely confided to an experienced member of a family, and on the *prompt* performance of which the preservation of a valuable life frequently depends; the symptomatic indications of disease are minutely detailed, in order that the means recommended may be early applied to check its advance; considerable space and great attention have also been devoted to the subject of Dietetics, and the instructions laid down in this department will, if attended to, materially tend to prevent disease, or, at least, greatly to alleviate its distressing consequences.

This work addresses itself especially to mothers and nurses, and to all who are intrusted with the management of a family; and to clergymen, missionaries, and other members of the community who devote no small portion of their time and means to mitigate the sufferings of their poorer brethren. To such parties this book will prove a valuable digest of medical knowledge; and from the attention that has been paid to the disorders and ailments peculiar to foreign and tropical climes, the work offers a no less useful source of reference to emigrants and to travellers by sea and land, who are frequently overtaken by local disease at a moment when regular medical aid is beyond their reach.

Of the suitableness of the *Cyclopedia of Domestic Medicine* to the wants and wishes of society in general, the publishers have abundant testimony; and they submit it to its readers, well assured that the labour and expense skilfully directed and freely bestowed in its preparation cannot fail to secure for it a prominent place among the popular medical works of the present day. No exertion has been wanting to lay before the public the most approved principles and plans of treatment in medicine and surgery, from the highest authorities of this and other countries. The articles have all been prepared by gentlemen *in extensive family practice*, and the nature of the information conveyed is well calculated to afford means of self-preservation to individuals of every profession, constitution, and climate.

An appendix is added of a few articles inadvertently omitted in the body of the book; also, a Domestic Pharmacopeia of all the medicines prescribed; which we believe, has not hitherto been attempted in any work of this class. The text is illustrated by a number of engravings on wood and steel, including coloured plates of vegetable-poisons. Nothing has been omitted that could give value to a work, intended,—not to supersede medical advice,—but to present in a popular and intelligible form that amount of medical knowledge which every head of a family, every clergyman and missionary, every captain of a vessel, and, we might add, every adult member of society, ought to possess.

Glasgow, 1842.

CYCLOPEDIA

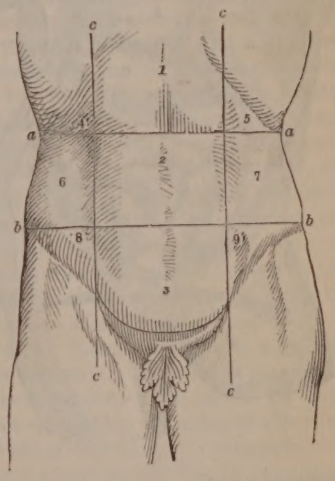
OF

DOMESTIC MEDICINE AND SURGERY.

A

ABDOMEN; the anatomical name for the belly. This cavity is bounded above by a broad muscle called the diaphragm or midriff, which separates it from the thorax or chest. In this muscle there are three openings: one for the transmission of the gullet, another tendinous passage for the descending aorta, or great artery descending from the chest, through which also pass the thoracic duct and vena azygos, and another very wide opening for the vena cava inferior, the large vein which returns the blood from the lower parts of the body. In front, and at the sides, the abdomen is bounded by muscles, and behind by the lower part of the spinal column and muscles attached to it; below it is bounded by two muscles called the levatores ani, the urethra and rectum passing out between them.

The abdomen contains the digestive, urinary, and part of the generative organs. It has been divided artificially into different compartments; not that any such division really exists, but merely that the position and description of its contents may be better understood. By referring to the accompanying figure, this division into regions will be seen:—



REGIONS OF ABDOMEN.

aa. A line encircling the body, commencing on a level with the lower part of the ribs.

bb A similar line commencing immediately above the haunch bones.

cc. cc. Two lines parallel to each other, and passing downwards from the cartilages of the 8th rib on each side to the upper part of the thigh. The abdomen is thus marked out into the different regions:

1 Epigastric region.
2 Umbilical ..
3 Hypogastric ..
4 Right Hypochondriac region.
5 Left Hypochondriac ..
6 Right Lumbar ..
7 Left Lumbar ..
8 Right Iliac ..
9 Left Iliac ..

CONTENTS OF THESE REGIONS.

The Epigastric Region contains

Middle part of stomach and its pyloric extremity; left lobe of liver; hepatic vessels; pancreas or sweat-bread; an artery which supplies the stomach liver, and spleen, called the cœliac axis; the semilunar ganglia, which send off nerves to supply the intestines; part of the vena cava inferior, and of the aorta, thoracic duct and vena azygos.

Right Hypochondriac Region.

Right lobe of liver and gall bladder; part of the duodenum, and of ascending colon; right renal capsule, and part of right kidney.

Left Hypochondriac Region.

Large end of stomach; spleen; narrow part of pancreas; part of colon; left renal capsule, and part of left kidney.

Umbilical Region.

Part of omentum and mesentery; transverse colon; part of duodenum, with some convolutions of jejunum.

Right Lumbar Region.

Ascending colon; right kidney, and part of small intestine.

Left Lumbar Region.

Descending colon; left kidney, and part of small intestine.

Hypogastric Region.

Convolutions of lower part of small intestine; the bladder in children and in adults if distended, and the womb in females when enlarged.

Right Iliac Region.

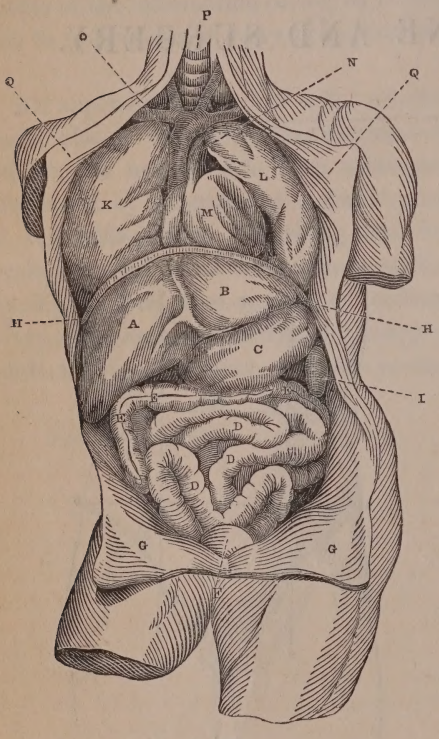
The cœcum or commencement of large intestine; the ureter, and spermatic vessels.

Left Iliac Region.

Sigmoid flexure of colon; left ureter, and spermatic vessels.

The anterior wall of the abdomen is lined internally by a smooth thin membrane, called the peritoneum, which also invests most of the contained viscera, preventing the bad effects which would otherwise ensue from friction of one part against another.

The appearance and general position of the contents of the abdomen when it has been laid open, will be better understood by referring to the accompanying woodcut, than from any description we could give the general reader.



A Right lobe of liver.
B Left lobe of liver.
C Stomach.
D Small intestines.
E Large intestines.
F Urinary bladder distended.
G The peritoneum, covering the internal surface of the anterior walls of the abdomen, which have been divided and reflected.
H Anterior edge of the diaphragm.
I The spleen.
K Right lung.
L Left lung.
M The heart.
N Pulmonary artery.
O Ascending aorta, giving off the great arteries to the head and arms.
P The trachea or wind-pipe.

All the parts described beneath the diaphragm are within the abdomen, and hence named abdominal viscera; the other parts, which are placed above the diaphragm, belong to the cavity of the chest. For a more distinct view of the different parts of the intestinal canal, see the wood-cut appended to the article *Alimentary Canal.* The abdomen frequently becomes the seat of diseases both medical and surgical, which will be treated of under their respective heads.

ABDOMINAL IRRITATION. This affection is very common, especially with females who have just passed, or nearly arrived at, the meridian of life, and is characterized by creeping pains over the abdomen, and frequent rumbling noise in the bowels. The sedentary of both sexes are liable to this disease. 'This unhealthy sensation,' remarks Dr Kinglake, 'is too indiscriminately referred to a disordered state of the liver,' and there is indeed nothing more common than to hear of affections of the liver where no such disease exists. This affection is most frequently occasioned by the large intestines being encumbered with, and distended by, an undue retention of feculent matter, requiring a free and complete removal. The scybalous hardened accumulations, which are apt to occur in the large intestines, especially the rectum, or lower part of the bowels, cause a sense of oppressive distension, accompanied by acute pain. This state of repletion may produce hurtful pressure on the adjacent viscera, and excite sympathetic disturbance throughout the whole digestive organs. It is often found, that the persevering use of daily enemas, in these cases, will finally unload the distended and turgid intestines of their impacted contents, and, consequently, at once remove the constipation and abdominal distention that constitute the ambiguous character of this intestinal and frequently mistaken ailment. One of the best enemas for this purpose, is an ounce of Epsom or Glauber salts, dissolved in half a pint of barley water, to which may be added two tea-spoonfuls of tincture of assafetida. After the bowels have been tolerably well cleared out, the enema need only be used every second or third day, and the salts omitted. In more obstinate cases, it may be necessary to take a cupful of the aromatic infusion of senna and rhubarb three hours before using the enema.

Persons subject to this troublesome affection should avoid raw and unbaked fruits and vegetables; and those of the cabbage tribe especially should be well boiled, and eaten with a large proportion of pepper. Unfermented bread is likewise an unfriendly article of diet to the subjects of this ailment; while a low watery diet, and food of every kind swallowed without sufficient mastication, is hurtful. The connection between the proper exercise of the functions of the teeth, and the healthy action of the stomach and bowels, is more close and intimate than is generally imagined, unmasticated food being more indigestible than that which is properly masticated and moistened by the salival fluid. The habitual use of lavements, or enemas, by the French, prevents the distended state of the abdomen that in Britain is often too cursorily referred to hepatic disease. On the other hand,

the French use a much greater quantity of vegetables, and other articles of diet calculated to produce flatulence, than the people of this country. Were the use of enemas to be as familiarly and constantly adopted by the people of the two countries, an equal exemption from this troublesome affection would most likely be the result.

Now that we have so many excellent forms of apparatus for administering enemas, sufferers have themselves to blame if they remain subjects of a harassing complaint so easily removed, and whose return is so easily prevented. An enema twice or thrice a-week. and one or two of the compound rhubarb pills taken daily an hour before dinner, will, after the bowels have once been thoroughly opened, prevent a return of this troublesome affection. As the myrrh which enters into the composition of the compound rhubarb pill of the pharmacopœias disagrees with some stomachs, in such cases the following original formula will be found preferable:

Extract of Camomile Flowers,
Powder of Turkey Rhubarb,
Powder of Socotorine Aloes, each one dram.
Oil of Camomile, six drops.
Oil of Peppermint, or Oil of Caraway, twelve drops.
Syrup, as much as is necessary.
Beat these ingredients into a uniform mass, and divide into forty-eight pills.

Two of these pills taken either before or during dinner, will facilitate digestion, and prevent flatulence and constipation. It is a matter of little consequence whether the peppermint or caraway oil is used, as either will answer the purpose. These pills, if accurately prepared from the best ingredients, will be found far superior to most of the *dinner* and *stomachic pills* so industriously advertised. In some cases it will, however, be necessary to take an occasional dose, night and morning, if the dinner-time dose fail in procuring one or two easy motions in the twenty-four hours.

ABORTION, or MISCARRIAGE, is the coming away of the fœtus, or child, at so early a period, and in so immature a state, that it cannot live when it issues into the world; it must therefore occur during the first six months of pregnancy.

Women in all ranks and conditions of life are liable to abortion, though the regularity of living and other advantages enjoyed in the country, render that accident much less frequent there than in large towns.

The *symptoms* of abortion are many, and different in different cases and individuals. When the symptoms of breeding cease in any stage of pregnancy, and a feeling of weight and coldness is felt in the lower part of the belly, and the breasts become flabby and soft, such may be considered as indications of future miscarriage. Pains in the back, loins, and lower part of the belly, bearing down with regular intermissions, and discharge of blood from the womb, sometimes give notice of approaching abortion; but it occasionally happens without any previous signs, though it does not always follow, even when violent pains with loss of blood, have taken place.

The usual *causes* of abortion are the separation of the appendages of the child from the womb, and the contraction of the womb itself; this may be brought on by various circumstances, with which every woman ought to be acquainted. When we reflect on the regularity of female animals with young, and consider it as one of the laws of nature, we shall be satisfied how much tranquillity, repose, and moderation, are in all respects necessary to women in a state of pregnancy, especially where there are the least symptoms of miscarriage. In this view great precautions should be used to avoid fatigue from walking, dancing, or other immoderate exercises, as well as improper regimen, heating foods and drinks, and especially spirituous liquors and strong tea, both of which tend to debilitate and enervate the female constitution. Over-heated rooms, crowded assemblies, and warm covering, are likewise injurious. There is also great danger in violent coughing, or efforts at stool, in consequence of obstinate costiveness, or its opposite state, severe looseness; a rash step, or trifling leap, at other times of no consequence, is often in this case attended with serious consequences. Sudden passions of the mind, as excessive fear, joy, surprise, &c.; and, above all, the irregular and unreasonable whims and caprices of the sex, are a fruitful cause of abortion. Blows on the abdomen and loins are not an unfrequent cause of abortion. Some women have a natural tendency to miscarry, which renders the most trifling accident dangerous; while others can undergo the most astonishing agitations of the mind and body without any injury. Of the latter we have too many proofs among those unhappy young females, who, to conceal their pregnancy, frequently swallow large doses of the most powerful and dangerous medicines, and take desperate leaps, without succeeding in their wicked design.

Women who have once miscarried should bear in mind, that they are peculiarly liable to do so again, and especially at the same period of pregnancy.

In the early months of pregnancy abortion is productive of no immediate danger; but after the fifth month, the life of the woman is always in a precarious state till the womb be entirely cleared. When there is any appearance of blood, in consequence of any accidents which threaten miscarriage, the woman should be put to bed, kept cool and quiet; and if she be of a full habit, or have symptoms of fever, it will be proper to take blood from the arm; and then, if regular bearing down pains do not follow the

discharge of blood from the womb, and no bulky or shining-like substance, or large clots of blood be brought down, it is probable the abortion will be prevented; but if, with the discharge of blood, large clots come off, attended with bearing down or pains in the loins and back, there is great probability of a miscarriage.

Every bulky substance that comes away should be kept in a basin of water, that the exclusion of the child, and its appendages, may be known, and that it also may be known when the whole is come away, for till that take place the woman never can be well. If the child alone (that is, without the placenta or after-birth) be expelled, and continued violent pains ensue, attended with a small discharge of blood, injections of warm water and oil, say one ounce of olive oil, and twice the quantity of warm water, may be injected into the womb with a syringe, by any intelligent female friend, to moderate the pain, and bring away the appendages. When the whole is come away, half an ounce of castor oil, and twenty-five or thirty drops of laudanum, may be given in a wine glass of peppermint or cinnamon water, and the patient kept quiet.

When, however, the discharge of blood is considerable, the patient may be eased, till professional assistance can be procured, by cloths dipped in cold water, or equal parts of cold water and vinegar, or brandy, or whisky and vinegar, applied to the lower parts of the belly, and from twenty to twenty-five drops of elixir of vitriol should be given in a large wine glass of cold water every two hours, or a wine glass of infusion of roses, keeping the apartment cool. Warm drink, or animal food, or broths, must be avoided; in fine, nothing stronger should be taken than weak barley water, or lemonade.

If a violent flooding continue, delivery must be accomplished, and the substance that causes it must be immediately brought away. Delay would be the death of the mother, for the womb being kept distended, the mouths of the blood vessels, which were inosculated or inserted into the separate part of the cake of the placenta, are continually pouring out blood; but as soon as the cake, or whatever it may be that extends the womb, is brought away, it immediately contracts, by which the mouths of the blood vessels are so compressed, that the blood cannot pass through them. This paragraph is especially designed for midwives, who will derive many useful hints from an attentive perusal of our article on Female and Infantile Diseases.

The complete delivery having been effected, a dose of castor oil and laudanum should be administered, the same as in a more mild case of miscarriage; and the patient's belly being moderately compressed with a flannel roller, which should likewise be applied in every case of abortion, she should be left to repose. Repose for *a few days* should be strictly enjoined. If the castor oil operates favourably, begin in the second day to give small doses of decoction of Peruvian bark, say a wine glass every four or five hours, with fifteen drops of elixir of vitriol; but the bark should in no case be given till the bowels have been gently relaxed by the castor oil.

When all discharges from the womb have ceased, and the patient is sufficiently strong to leave her bed, it will be advisable to wash the parts with water (but by no means warm) for some time, night and morning. Indeed the management after abortion, in the latter months, ought to be nearly the same as after delivery, at the full time.

In conclusion, we may observe that the greatest disposition to miscarry is from the eighth to the twelfth week, and therefore such as are so threatened should lie much in bed, or on a sofa, before and during that period, and especially guard against all violent emotions of the mind, and those causes that may have operated so injuriously on the former occasion, always bearing in mind, that miscarriages infallibly produce general and local debility, with all its evil accompaniments.

Cold bathing, especially mild shower bathing (we mean that the shower should be slower and lighter than usual), and in some cases occasional blood letting, have frequently very good effect in preventing abortion.

During the whole course of pregnancy, the bowels, if not naturally moist and easy, should be kept so by mild laxatives, such as castor oil, the tincture of senna with rhubarb, or the infusion of senna with rhubarb; but aloes, colocynth, and other drastic purgatives, are too apt to produce symptoms which may terminate in abortion. See *Pregnancy*.

Criminal attempts to procure Abortion. In every state, whether savage or civilized, attempts have, from various motives, been made to procure abortion. These are dangerous in proportion to the violence of the means employed, and the difficulty with which the ovum separates from the uterus. It is a fact that cannot be too generally known, that such medicines as destroy the child, or cause miscarriage, produce very dangerous effects on the system of the mother, and sometimes prove fatal to her. That such attempts are highly criminal no one can doubt, but unfortunately a prejudice prevails with the ignorant, that until the period of quickening, the child is not alive, and that consequently, it is not reprehensible or sinful to remove it prior to that time. There is, however, no fact more clearly proved than this, that the fœtus is alive, and gives decided marks of its vitality long before its motion can be felt by the mother.

The means employed to procure abortion are of two kinds, direct and indirect. In the first

may be classed all such causes as tend to diminish the nourishment of the fœtus, and thus produce starvation or inanition, such as bleeding, and purgatives, especially those of a drastic nature, as they also act by sympathy, increasing the vermicular action of the intestines to a violent degree, and exciting the contractility of the womb. Under the second head may be classed all those causes which have a tendency to interrupt the communication between the fœtus and the mother, as violent mechanical means, dancing, emetics, sternutatories, and such like, also such as produce a determination of blood towards the uterus, or neighbouring parts. But nature generally interposes her salutary resistance to even the most energetic of these deleterious expedients, and, careful to perpetuate the species, casts her ægis over the fœtus, and renders them innocuous to the offspring, except at the price of the life of the guilty mother, or at the permanent loss of her health and peace of mind.

Quickening, as it is called, takes place about the sixteenth week; *before* that event, an attempt, by administering to the mother poison, or other noxious things, or using any instrument or other means, with intent to procure miscarriage, by the law of England, is only a misdemeanour, transportable for not more than fourteen years, or thirteen years imprisonment; but after quickening, such attempt is punishable capitally.

By the law of Moses it is enacted, that where miscarriage takes place through violence, the judges shall regulate the degree of punishment according to the circumstances of the case; but should death ensue, then they are ordered to give 'life for life,' Exod. ch. xxi. 22, 23.

It would appear by the English law, that as a woman cannot put in a plea in stay of execution unless the child has quickened, 'so neither is the procuring abortion a crime previous to that indefinite period; because, according to the same law, life only begins as soon as the infant is able to stir in the mother's womb. For if a woman is quick with child, and by a potion, or otherwise, killeth it in her womb; or if any one beat her, whereby the child dieth in her body, and she is delivered of a dead child, it is, according to the modern law, merely a heinous misdemeanour. But if the child be born alive, and afterwards die in consequence of the potion, or beating, it will be murder; and of course those who, with a wicked intent, administered the potion, or advised the woman to take it, will be accessories before the fact, and subject to the same punishment as the principal.'—BLACKSTONE.

The law of Scotland, too, is framed on the vulgar belief, as it is declared to be a capital crime to procure a miscarriage after the child is quick; but there is no statute against destroying it before that period, and the attempt in most cases, only receives an arbitrary punishment.

By an Act of Parliament passed so lately as the year 1803, this distinction is explicitly made, for it is expressly said, that the procuring of abortion before the child shall be quick, shall be punished with imprisonment or transportation; but if the child have quickened the person shall be hanged. There is the authority of Hale for saying, that in England this principle was even pushed farther, for the plea of pregnancy did not even stop the execution of a criminal if she had not reached the period of quickening. In Scotland, this barbarous act never obtained ground, for pregnancy at any stage has always been a bar to execution. In France the crime of procuring abortion was formerly capital; but since the revolution, the punishment has been twenty years' imprisonment. In every civilized country it is decreed, that if a woman die in consequence of taking medicines to cause abortion, the person who administered them shall be held guilty of murder

In some countries, abortion, so far from being prohibited, is encouraged. In the island of Formosa, no woman is allowed to carry a child to the full time till she arrives at the age of thirty-five years. The American Indians likewise permit attempts to procure abortion; and the Africans, in order to conceal an illicit connection, sometimes use an infusion of a species of grass to destroy the fœtus. In Guiana, a different plan is used for the same purpose. In the West Indies the negroes sometimes make similar attempts; but we hope the days are past when parents would rather destroy their offspring than rear them up to serve the tyrant and oppressor; though from promiscuous intercourse, and other causes, abortion frequently happens without any effort on the part of the mother.

As many of our readers may be called to act as jurors in cases of child murder or infanticide, we advise them to give Beck or Ryan's Medical Jurisprudence, and other articles connected with the puerperal state in this work, a careful perusal, when they will be better qualified to discharge a great public duty with credit to themselves and justice to the community.

We shall conclude this article by quoting the remarks of Dr William Hunter. It was the opinion of this celebrated man, 'that the crime of procuring abortion is not of such frequent occurrence as many suppose. The wish to preserve her character naturally induces a woman to conceal her situation; and not being certain how far her pregnancy has advanced, she may be seized with pains, which she mistakes for griping in the bowels (which the first pains of labour sometimes greatly resemble), and going to the privy, be there delivered. The child may be still-born, or it may be killed by falling on the ground, or die from hæmorrhage, or be drowned

in the profuse discharge of the mother, who, from fear, pains, or insensibility, is unable to assist it. In such a case it would answer no purpose that the woman should divulge her secret; she would naturally endeavour to preserve her character, and hide every appearance of what had happened as well as she could; yet if discovery should be made, the circumstance of concealment would be set down as a proof of her guilt.' Jurors and judges ought therefore seriously to deliberate before they form a judgment, and lean to the side of mercy, without being influenced by popular clamour, or other motives of less powerful influence. See *Infanticide*, also *Pregnancy*, and diseases of, in which will be found a mass of very important information, especially to young married females, young mothers, midwives, nurses, &c., as well as medical students and young practitioners.

ABRASION; this term, which signifies to tear off, is generally applied in medicine and surgery to any part where the external skin has been rubbed or torn off, and likewise to those affections of the stomach, bladder, and intestines, where the natural mucus having been destroyed, and the inner coat left unprotected, its fine tender surface has become abraded. The treatment in the various cases of abrasion will appear under their respective designations.

ABSCESS, Common. This in Scotland is vulgarly called a *bealing*, and is a collection of pus or matter in the cellular membrane, the viscera, or the bones, preceded by inflammation, which terminates in suppuration, or bealing.

The *symptoms* are a throbbing pain, which lessens gradually, as well as the heat, tension, and redness of the inflamed part, and if the matter be near the surface, a cream-like whiteness is soon perceived, with a prominence about the middle, or at the inferior or lower part, then a fluctuation may be felt, which becomes gradually more distinct, till at length the matter in general makes its way outwards. Except in the case of common external abscesses, it is frequently necessary to open them by making an incision with a lancet in the most depending part.

Common abscesses should be brought to a proper degree of maturity by means of warm fomentations and poultices, when, if they do not break of themselves, they should be opened, and that sometimes before they are completely ripe, especially if they be in the neck or immediately above a joint, as the matter is apt to descend, and insinuate itself into the cellular membrane, and occasion a serious extension of the disease. If the collection of matter is large, the incision should be kept open by pledgets of linen, or Surgeon's lint, moistened with basilicon ointment, interposed between the lips of the wound, and a poultice applied over it. If the abscess is large, and the patient labouring under debility, a decoction of Peruvian bark, with a few drops of elixir of vitrol, may be taken in doses of a wine-glass full three times a-day, a gentle laxative having been previously administered; but it should be recollected, that it is always improper to administer laxatives during the formation of matter, or till an abscess is ripe, unless the inflammation is very violent. Nourishing diet, and, where it can be afforded, wine, or wholesome ale, may be given.

When the discharge is considerable, the sore will require to be dressed twice a-day; but when the discharge ceases, or is only trifling, the poultice may be withdrawn, and linen rags, covered with basilicon ointment, or Turner's cerate, applied. The best poultice is lintseed meal, mixed with boiling water, and, when that cannot be procured, crumbs of bread boiled in sweet milk, or oat meal porridge without salt. In situations where it is difficult to retain the poultice in its proper situation, it may be put in a bag made of thin lena, with a tape at every corner of the bag to fasten it on, and retain it in its place. Neatness in dressing abscesses, and care in making the poultices on a clear fire, will greatly tend to promote the comfort of the patient.

Abscesses are variously denominated according to their seat; but when in any of the internal viscera, or in the psoas muscles, they are beyond the reach of domestic treatment. There are two muscles of this name; viz., the psoas magnus, and the psoas parvus. The first is long and fleshy, filling the space upon the sides of the spine. They are in constant use in moving the thigh forward, and supporting the pelvis upon the thigh bone. An abscess here is frequently fatal, and requires for its management the most exquisite skill. To ascertain the situation of these muscles, our readers may consult our back view of the muscles, with the explanation of the references. See the *Plate of the Muscles*.

Cases of *Psoas Abscess* are often mistaken for rheumatism, and, in the first instance, it is not an easy matter to make a distinction. Indeed we have frequently seen it denominated lumbago, when it, in a short time, gave evidence of its true character. In cases, therefore, of young people who have a scrofulous appearance, and have complained of pain in the back for a long time, with emaciation or general wasting, and increasing debility, we may always suspect that there is a collection of matter, which will end in psoas abscess. See *Ulcers, Sores, Tumours*, &c.

ABSCESS, Milk. See *Breast, Diseases of.*

ABSORBENT MEDICINES are medicines which, when taken inwardly, or applied externally, have the property of absorbing redundant and acrid humours. They are sometimes called Antacids, Antalkalines, and Antacrids, from their having no acrimony in themselves, and destroying acidities in the stomach and bowels. Such are magnesia, prepared chalk,

oyster shells, crab's claws, &c. In cases of erysipelas, or rose, for example, the application of dry flour to the skin, or equal parts of magnesia and flour, absorbs or takes up the acid matter, which propagates the inflammation, by flowing under the cuticle or outer skin. A dry sponge applied to a moist surface, may be said to act as an absorbent, as it absorbs, or takes up the moisture.

ABSORBENT VESSELS are thin delicate transparent tubes, which carry the lymph from every part of the body; absorb, or imbibe any fluid with which they come in contact, such as substances applied to the surface of the body; and convey the chyle from the intestines to the thoracic duct. They are known by the names of lacteals and lymphatics, according to their situation and use. Those of the intestines and mesentery are the lacteals, and those in every other part of the body lymphatics. The former convey the chyle from the intestines to be mixed with the blood, and afford nourishment to the body, and the latter conduct lymph, a thin pellucid liquor, from all the interstices of the body. The absorbent vessels are supposed to exist in every part of the body, although they have not been discovered in some, as the brain, &c.

The use of these small vessels (in some instances invisible to the naked eye) may be partly gathered from the above description; but to be more particular: they carry back the lymph from different parts into the blood; convey the chyle from the intestines into the thoracic duct, where it is mixed and diluted by the lymph, and absorb substances from surfaces and parts on which they originate.

For an example of this last named property, suffice it to say, that they convey mercury into the body which has been applied to the skin, and thus produce salivation. The practice of curing or alleviating disease and pain by this plan is yet in its infancy. See *Lymphatics* and *Endermic Medication.*

ABSORPTION. The literal meaning of this term is to suck up; and it is employed to designate that natural function of the body which is exercised by the absorbent vessels. Thus the nutritious part of the food is absorbed by the lacteals; and, as we have stated in a preceding article, mercury and other medicines are absorbed by the lymphatics of the skin. A difference of opinion exists among physiologists as to the principle on which this function takes place. Dr Hunter and others attribute to the mouths of the vessels powers similar to those exerted by a caterpillar when feeding on a leaf; and others suppose a power of suction in the surface of the absorbent vessels; but we are inclined to think, and, we believe, on good grounds, that there is a power inherent in the mouths of the absorbents, a *vis insita,* dependent on a degree of irritability of their internal membranes, by which they contract and propel their contents. The existence of these vessels, and their functions, is one of those wonders in the animal frame which will, perhaps, never be fully comprehended and understood by man; and it is only of late that physiologists have arrived at any knowledge concerning them. The existence of the lacteals were indeed known to Erasistratus of the Alexandrian school, and the lymphatics were discovered by a Swedish and Dutch anatomist, in 1657, but it is less than a century since the principle of absorption was asserted and explained; new light is, however, daily diffusing its rays on the practical application of this function in the cure of disease.

ABSTERGENTS. A term seldom employed by modern writers, which means to wash or cleanse away, and is applied to those medicines which, by their fluidity, possess the faculty of washing off any substance that may adhere to a foul sore or ulcer, and, at the same time, of diminishing the adhesion of such matters as may be discharged from those diseased parts. They are therefore always prepared in a liquid form, and denominated lotions or washes.

ABSTINENCE, as employed in medicine, is the refraining from, or ceasing to exercise, any of those functions of the body, to which, in a state of health, there is a natural propensity, but which, at the same time, are under the control of the will; such as eating, drinking, &c. The right understanding of the beneficial and injurious effects of abstinence in diet, is essential to the judicious and successful treatment of disease, either by the professional or domestic physician. Abstinence may be either partial or complete, and in either case, is a most effective mean of subduing various morbid actions of the body. In the beginning of febrile and inflammatory diseases, abstinence from solid and over-nutritious food is indispensably necessary, and forms one part of what is called the cooling or antiphlogistic regimen. The same procedure applies with equal propriety to those inflammatory states of the system induced by external injuries, and in hæmorrhages, or discharges of blood from the lungs, nose, uterus, and other passages, and it is perhaps the most effectual of all means for recovering the healthy tone and action of the stomach and brain, produced by drunkenness or other acts of intemperance.

A very injurious practice obtains among inexperienced sick nurses of dosing patients with rich gruels and broths, even in the very first stages of inflammatory fevers, lest they should die of starvation. In such cases it is not easy to discriminate at what stage of disease total abstinence from solid and nutritious diet should cease; but it may in general be adopted as a safe rule to abstain till the tongue begins to assume a cleaner appearance, and the skin a cooler feel, and like-

wise till the patient becomes reconciled to, if not altogether desirous of nourishment.

In appreciating the usual effects of abstinence, it is extremely requisite, observes Dr Copland, 'to be aware of two things, 1st, That the effects vary with the state of the patient at the time that abstinence is endured—2d, That they differ materially, according to the suddenness with which it is entered upon, the extent to which it is carried, and the circumstances with which it is associated. By very corpulent and plethoric persons abstinence is generally borne well for a long period, or by those labouring under febrile or inflammatory excitement, and it is in them one of the most necessary means to diminish the one and lower the other. In these, particularly the latter, total abstinence may be endured for many days, whilst if carried to the same extent in healthy persons, its effects would be fatal, or nearly so. Abstinence, also, is longer endured by persons of the middle or matured epoch of life, than by those of an early age.'

Habit here, as well as in most other cases, exerts its powerful influence, as is exemplified in the case of religious devotees, especially among the Jews, Mahometans, Roman Catholics, and several heathen tribes. Few subjects, however, afford a more interesting field for investigation than the effects of abstinence on the animal economy, and even on the moral and intellectual faculties of man. As the effects of abstinence receive much indirect illustrations in those articles which treat of the structure and functions of the digestive and assimilating organs, it is less necessary to enter more fully on the subject, in this place. We may, however, observe, that prolonged deficiency of food, or even of those articles of diet to which an individual has been long accustomed, is followed by loss of colour, general and especially nervous debility, succeeded by diarrhœa, scorbutic dysentery, scurvy, and typhus fever, and if these deprivations are accompanied by damp or confined air, fatal consequences may be predicted; and of this mournful proofs have even of late been afforded, in prisons, penitentiaries, convict ships, and poor-houses; these diseases bidding defiance to every medicine, till proper diet and regimen were introduced, especially a moderate allowance of solid and nutritious food.

Total abstinence produces a jaundiced colour of the skin, diminished excretions, fetid breath, fever, delirium and death; and of this the history of medicine and our own experience afford numerous examples.

Partial abstinence, as has been already observed, may nevertheless prove highly beneficial in many cases, not only of acute and inflammatory diseases, but in a variety of other cases; nothing being so prejudicial to the health, especially of the studious and sedentary, and those who follow light employments, as the system of gorging or stuffing the stomach with rich and solid food; and yet this preposterous system is followed by many of the inhabitants of crowded cities, who but seldom see a green field, or breathe a pure and uncontaminated atmosphere. A spare diet has frequently produced wonderful effects, not only in the cure of disease, but in promoting health and longevity. Of this Louis Cornaro, a noble Venetian, affords a striking example, who, after a life of luxury, was, at the age of forty, attacked by a disease which bade fair to prove fatal, yet he not only recovered, but lived nearly 100 years, from the mere effects of abstemiousness. Other individuals have reached 100, some near 150, from the effects of temperance alone.

In cases of shipwreck, and other distressing situations, in which men are sometimes placed, we have proof of the very limited portion of food by which the human body may be sustained for a considerable length of time; and natural history furnishes us with many astonishing examples of the little apparent injury produced by abstinence on other animated beings. Generally speaking, the necessity for a frequent supply of aliment is greater, the higher the rank of the animal, but the quantity taken at each meal is proportionally less, and this power of sustaining long abstinence, together with the extreme voracity at intervals, is in general more remarkable in cold blooded than in hot blooded animals. That man is capable of sometimes enduring very long abstinence is sufficiently established by many very remarkable cases, but that he does not, at least in civilized life, willingly subject himself to this; and again, that he can occasionally devour an immense quantity of food at once, is also sufficiently well known.

We now address ourselves to the *treatment* of those cases (may they be few) in which involuntary abstinence has induced morbid or diseased action, and, without the most careful and judicious management, the sufferer will soon proceed beyond the limits of our aid or assistance. Let us then suppose a shipwrecked mariner, found floating on a plank, and almost unconscious of his existence, or it might be a delicate female passenger, or one who had been for many days almost smothered below a load of earth and stones, under the ruins of a building, in a coal-pit, or quarry, and in all those cases, the powers of nature nearly altogether extinguished.

The first thing to be done is to remove the sufferer as speedily and as carefully as possible, to the nearest dwelling, observing to keep the head a little elevated. A warm bath should immediately be procured, and the person immersed in it up to the neck; the temperature should be some degrees higher than in the ordinary hot bath, or rather it should be gradually elevated to that high temperature; and the head care-

fully supported. In this bath the patient should lie, sit, or recline, for fifteen or twenty minutes; be taken out and the body dried with warm towels, using considerable friction, and a sinapism applied to the stomach, the size of our page, for twenty minutes, or until heat and irritation is felt. If capable of swallowing, a wine-glass full of warm beef-tea, in which had been boiled a few whole peppercorns, may be administered, and the body laid in warm blankets, and an enema of beef-tea, not more than one gill, or four ounces, administered at the same time. A young healthy person should be placed at each side of the patient in bed, and if sleep does not ensue, a spoonful of beef-tea or chicken broth, in which barley, groats, or flour, has been boiled, may be given every fifteen or twenty minutes. A clyster of beef-tea, or broth thickened with flour, should be carefully administered every two or three hours, so as to be retained. Not more than a gill should be thrown up at one time. Hot bricks, or bottles of hot water applied to the feet, and gentle friction used, if the perspiration is not free, and the skin remains cool; tin or salt-ware stomach-warmers are most useful instruments in such cases. When the pulse and countenance give evidence of returning animation, (for we do not now allude to those cases in which the action of the lungs, or breathing, is suspended, but only to cases of very extreme debility,) a spoonful of brandy, gin, rum, or whisky, in a wine-glass of hot water sweetened with sugar, and seasoned with nutmeg, may be given; if, however, the heat of the skin is natural, and a glow of warmth felt, the punch may be omitted, and the beef-tea, or chicken broth, or ginger, peppermint, or cinnamon tea, or even warm coffee or common tea, should be preferred. An enema or clyster of a gill or half a pint of rich broth, should now be administered every eight hours, and retained as long as possible.

If pain in the bowels or diarrhœa ensue, fifteen or twenty drops of laudanum, in half an ounce of tincture of rhubarb, and an ounce of cinnamon water, may be given, but the less opiates or medicines administered so much the better. Sometimes in extreme cases mild stimulants may be introduced into the stomach, by means of the stomach pump, but in no case should the injection of warm broth, and the warm bath and friction, be omitted. These means, if steadily persevered in, will in general succeed in recruiting the strength of those who have suffered from abstinence. There is one universal rule, especially in the case of those who have been for days excluded from the light, viz., to keep the room dark and warm, but well ventilated, as a number of individuals in a small apartment always contaminate the air. In fine, there are few cases in which more skill and discretion is required than in the recovery of an individual, or a number of individuals, reduced to extreme debility by involuntary abstinence. It should likewise be an invariable rule for those who have suffered from abstinence, especially if from shipwreck, to wear flannel or cotton shirts, or a flannel jacket or shirt above the cotton, and flannel drawers, so as to maintain the healthy action of the skin, an object of much greater importance in the restoration and preservation of health, than is generally imagined.

ACCESSION. This is a term used to denote the approach or commencement of any disease, or symptom thereof.

ACCOUCHEUR, a practitioner of midwifery.

ACESCENT, a term denoting substances which have a tendency to turn sour upon the stomach.

ACETABULUM. The cup-shaped cavity which receives the head of the thigh bone, forming the hip-joint. It has been so called because it represents the acetabulum, or saucer, of the ancients, in which their acetum, or vinegar, was presented at table.

ACETATE. Salts formed by the union of acetic acid with alkalies, earths, and metallic oxides are denominated Acetates. Many acetates are used in medicine, and some of them are articles of great efficacy; as, for example, the acetates of potash, of iron, mercury, lead, morphia, &c., all of which, with their uses and doses, will be found under the respective heads, or those articles from which they derive their names.

ACETIC ACID. This acid is composed of carbon, hydrogen, and oxygen, in its dry state; and in its moist, these principles are combined with water. It has a strong and acrid taste, with a very pungent and grateful odour, requiring about eighty-seven grains of crystallized carbonate of soda to saturate one hundred grains of the acid; but although this is the case as ordered by the colleges, it is seldom sold of this strength. It becomes solid and crystallizes at 28° Fahr. liquifying again at 40°.

Its operation on the animal system is powerfully escharotic, stimulant, and rubifacient, inflaming and blistering when applied to the skin. This acid dissolves resins, gum resins, camphor, and volatile oils, and is employed in the preparation of several officinal articles, such as the vinegar of cantharides, the acetate of morphia, the acetate of lead, and others, which will be found under their own designations.

In fainting and other fits, and in headaches, it is applied to the nostrils, and externally as a caustic to warts and corns. Combined with camphor, it is called the Camphorated Acetic Acid; a few drops of alcohol, or strong rectified spirits of wine, are dropped on half an ounce of camphor, which is then rubbed to powder in a glass or Wedgewood mortar, and the powdered camphor dissolved in six ounces of the acetic

acid. A few drops of essence of lemon, bergamot, or other perfume, may be added to the camphor and acid according to taste or fancy. This preparation is an excellent and cheap substitute for Henry's aromatic vinegar, and other pungent aromatic acids, and should be kept in vials or bottles, with accurately ground stoppers, or on spunge, in a gold lined vinegarette.

A new preparation of the acetic acid is introduced into the London pharmacopeia (1836), called Acetum Cantharidis, or vinegar of cantharides, which is formed by infusing two ounces of powdered cantharides, or Spanish flies, in one pint of acetic acid, for eight days, then express and strain. This is no doubt a powerful vesicatory or blister, and will doubtless form an elegant and convenient substitute, in many cases, for blistering plaster. We, however, warn those having the charge of children against using it, although it is perfectly safe in most cases where a speedy blister is required in adults. See *Vinegar* and *Aromatic Vinegar*.

ACIDITY OF THE STOMACH, an unpleasant sensation of heat or burning at the stomach, frequently attended with the belching up of a sour or acid fluid, occasioned by the use of certain articles of food, such as unfermented oat bread, oat meal porridge, rich broths, butter, crust of pies, and raw vegetables, &c., that interrupt or disorder the operation of the digestive organs. Youth are more liable to this affection than adults, and it is often peculiarly harassing to females in the first month of pregnancy.

Cure or alleviation is sometimes effected by purgatives, at others by demulcents, such as extract of liquorice (black sugar), and likewise by absorbent and bitter medicines, especially the compound powder of Columba, in doses of a tea spoonful, in a wine glass of cold water, an hour before meals; but most effectually by change of air, a proper regimen, and the avoidance of alimentary substances liable to produce acidity in the stomach. See *Heartburn*, *Pregnancy*, *Chalk*, *Columba*, *Magnesia*, &c.

ACIDS. That bodies should belong to the class of acids, it was formerly considered as requisite that they should have a sour taste, be soluble in water, and have the property of reddening vegetable blues; and those properties do indeed belong to some of the most common and powerful acids. In the present language of chemistry, however, according to one of the first authorities (Dr Thomson) by acid is understood a substance which has the property of combining with, or neutralising alkalies or bases. There are, however, various acids that have no taste, and which are not sensibly soluble in water, and some of which are not capable of altering the colour of the most delicate vegetable blues. Acids are compounds, and Lavoisier and others were of opinion that oxygen constituted an essential ingredient of them all. Not only oxygen, however, but all the other simple supporters, viz., chlorine, bromine, iodine, and fluorine, are capable of forming acids by a union with several of the acidifiable bases, and indeed even when they unite with several of the alkaline bases, especially those denominated the noble metals: cyanogen, sulphur, selenium, and tellurium, have also the property of forming acids when they unite with acidifiable bases. Chemists have divided the acids at present known into nine classes, viz., bromine, chlorine, cyanogen, fluorine, iodine, oxygen, sulphur, selenium, and tellurium acids.

The principal acids used in the practice of medicine are all, without exception, when in a concentrated state, and taken undiluted, even in very small quantities, powerful poisons; and their medicinal, as well as poisonous qualities, will be found detailed under their respective designations. The most powerful, and those which prove fatal in a very short period, are the hydrocyanic, or prussic acid, the arsenical oxalic, nitric, muriatic, and sulphuric, all of which, in an undiluted form, even in very small quantities, especially if the stomach be empty, deprive the individual of life, with either less or more of suffering or pain. Acids in general possess a greater or less degree of causticity, and most post mortem examinations present inflamed surfaces of the alimentary canal and stomach, and frequently extensive perforations of the latter organ. The prussic acid is, however, an exception, as no change of structure, nor any trace of inflammatory action is evident, but a strong odour of bitter almonds pervades every part of the body. We, however, refer to the different designations for particulars, seeing there are several of the acids, vegetable as well as mineral, which, either in a diluted or neutralised form, are most powerful agents in the alleviation and cure of disease. See *Acetic*, *Benzoic*, *Citric*, *Sulphuric*, *Nitric*, *Muriatic*, *Prussic* and *Tartaric Acids*, &c. &c.

ACIDULOUS. This term is applied to mineral waters, having an acid taste and effervescing quality, arising from the carbonic acid gas diffused through them.

ACONITE. See *Monkshood*.

ACRIMONY. A substance which has the quality of irritating, corroding, or dissolving other substances, is said to possess acrimony. It was indeed till very lately supposed there were acrimonies in the blood and juices of the body, that produced disease; and although these doctrines are exploded, the term is still used to express the idea, as we sometimes say there are venereal and other acrimonies.

ACTION. This term frequently occurs in books on medicine, and is employed to denote any faculty, function, or power of the body; as for example, we speak of the vital functions, or

actions, that is, those functions or actions without which we cannot exist, such as the action of the heart and the lungs; the former of these if it ceased, the circulation of the blood would also immediately cease, and if the latter were suspended, breathing would immediately cease. There are likewise natural actions or functions, such as those employed in healing or repairing the injuries which the body may sustain, the process of digestion, the formation of chyle, the secretion of bile by the liver, &c.; hence we say the healthy action of the liver, stomach, or bowels. Again there is another class of actions which we perform at will, and these are called animal actions or functions, such as the various movements of the body, and the performance of the various voluntary acts of which we are capable; and, in fine, every part of our frame, mental as well as physical, may be said to have a peculiar function or action which it performs.

ACTUAL. To any thing endowed with a property or virtue, which acts by an immediate power inherent in itself, the term actual is applied, in opposition to potential, another term employed in medicine. For example, fire or a red-hot iron, is called an actual cautery, in contradistinction to such caustics as are called potential cauteries. Brandy, producing heat in the body, is potentially hot, though itself cold, and so are many other substances that might be named, while boiling water is actually hot. An attention to such definitions as these will soon render medical phraseology familiar to a general reader.

ACUPUNCTURE is a medico-chirurgical operation, which was introduced into Europe more than a century ago, and has for time immemorial been practised in China and Japan. It consists in introducing one or more needles of a particular size and shape, into any diseased part, especially where there is a swelling and pain. It has been employed in chronic rheumatisms, and muscular and neuralgic rheumatisms, unaccompanied by heat, in sciatica, lumbago, nervous and convulsive affections, sprains, contusions, uterine pains, hiccup, and hysterics. In anasarcous swellings we have frequently employed acupuncture with advantage, and in edematous swellings of the scrotum, penis, eyelids, and, in fine, in all cases where a watery fluid is lodged under the cutis, or among the cellular substance, or the fascia of the outer layer of muscles.

There is a species of acupuncture in which the operation is associated with galvanism and electricity, under the name of the electro, or galvanic puncture, which has in some cases been attended with good effects.

ACUTE, OR ACUTE DISEASES. The terms acute rheumatism, acute inflammation, &c. are now familiar to the ears of every school-boy, and the opposite term, chronic rheumatism, is but too familiar to many who have not yet passed the meridian of life. The term acute is generally applied to a disease, which is attended with violent symptoms, and in most cases with danger, and which terminates in a few days, either in relief, cure, or death. In tropical climates acute diseases most commonly terminate in thirty-six or forty-eight hours, and frequently in twenty-four. The term acute is therefore opposed to a chronic disease, which is slow in its progress, and not so generally dangerous, although often sufficiently painful and harrassing. An acute disease not unfrequently assumes a chronic form, and a chronic sometimes terminates in an acute.

ADDER'S BITE. See *Venomous Insects.*

ADHESION — ADHESIVE INFLAMMATION. Adhesion in surgery means that process by which nature effects the re-union of divided parts, as in cuts, fractures, &c., and is also sometimes distinguished by the term of union by the first intention. By adhesive inflammation is meant that species of inflammatory action which terminates in adhesion of the inflamed surfaces. Although there is no doubt that adhesion frequently follows inflammation in some tissues, particularly the serous, still it seems very doubtful whether inflammation, properly so called, is absolutely requisite to procure adhesion; or whether, what is usually meant by adhesive inflammation, is not merely incited or increased action of the vessels of the wounded parts; but to render this process more intelligible to the general reader,—suppose a person has received a clean incised wound, or cut, and that after the bleeding has been stopped, and all the clots of blood or other foreign matters removed, the divided edges have been placed and retained in accurate contact by proper dressing, slight pain and heat will be felt in the part, with slight throbbing, indicating that the vessels have assumed an action greater than usual, though not equal to the inflammatory; coagulable lymph is next effused from the vessels uniting the opposite sides of the wound, but at first this union is only slight and easily disturbed; by degrees, however, the lymph becomes firmly attached to the sides of the wound by means of vessels which shoot into and through it, and inosculate with each other; in other words it becomes organized, and thus acts as a firm uniting medium. That increased action is all that is usually meant by the term adhesive inflammation, is pretty obvious from the directions generally given to procure adhesion. These directions have been briefly summed up by one author, in speaking of the treatment of amputated limbs: 'Keep the inflammation to the first stage; if it goes beyond this, formation of matter will be the result, and union must then be effected by granulation.' From this, as well as from the most approved method of treating wounds, viz., lint

or rags steeped in cold water, light dressings, and unirritating plasters to the part, and light unstimulating diet; we may perceive that as a general rule, inflammation, properly so called, is to be avoided as subversive of adhesion, all that is necessary being only incited action of the vessels by which a larger quantity of blood is sent to the part where the reparative process is going on. There is one phenomenon in the process of adhesion which we have not yet noticed, viz., that the newly formed vessels each secrete or furnish a substance similar to that in which they ramify; thus skin is formed from the vessels of the skin, and bone from the vessels ramifying through the periosteum and bone; in this last instance, the effused lymph forming the uniting medium becomes at first cartilaginous, or gristly, and then osseous deposit takes place. It generally receives the name of callus. The treatment necessary to procure adhesion will be more fully treated of under the article *Wounds*.

ADHESIVE PLASTER. The colleges order this plaster, which is also denominated resin plaster, to be prepared by melting together, over a slow fire, three pounds of litharge, or lead plaster (diachylon), and half a pound of yellow resin, (or rosin); and Mr Baynton, who published a very interesting work on the cure of sore or ulcerated legs, by the application of this plaster, orders a less quantity of resin, only six drams to one pound of the diachylon, and for most practical purposes, especially for those contemplated by Mr Baynton, the composition is certainly preferable.

This plaster, like some others, used to be spread on linen, leather, or calico, by a heated iron; but it is now done in a much superior manner by a machine, which produces a smooth uniform surface, and may be had spread on calico, linen, soft leather, or silk, of various degrees of thickness, texture, or colour. A yard of this useful plaster, which only costs a few pence, should be kept in every family as a ready application to wounds, and is an indispensable article in every marine medicine chest. At home, it is best preserved in a tin (or Scotch white iron) case, such as is used for the preservation of maps or plans; in warm climates it is best preserved by being rolled in flannel, and kept in a wooden box.

The manner of application, and the various uses to which this plaster is applied, will be appropriately detailed under the respective cases of disease and accident in which it is employed.

ADIPOCERE, an animal substance, or rather a substance obtained from animal flesh or muscle subjected for a great length of time to a constant stream of running water, and, in some cases, still waters occasionally agitated. The muscle becomes entirely changed in its appearance, and assumes that of a substance resembling white soap or spermaceti, or a mixture of fat and wax; hence its name is derived from two Latin words, *adeps*, fat, and *cera*, wax. Indeed, whole bodies have been converted into this substance. The curious will often meet with it in ponds and ditches, in the vicinity of great towns, where boys are in the habit of throwing in dead cats and dogs. A considerable quantity may be seen, in an almost stagnant pond, in the neighbourhood of St George's church in the fields, near Glasgow, at a place called Blackquarry, or a pond formed by excavation of a quarry.

ADIPOSE SUBSTANCE. The cellular tissue containing the oily or fatty matter of the body.

ÆTHER. See *Ether*.

AFFECTION, in popular medicine, and even not unfrequently by the Faculty, is employed as synonymous with partial disease, or derangement of any of the functions of the body.

AFFUSION. The showering, dashing, or pouring water or other liquid, either on the whole or some given part of the body. The term is most generally applied to cold effusion. See *Bathing*, section *Cold and Shower Baths*.

AFTER-BIRTH, is a cellular spongy mass or round cake, about half an inch larger in circumference than the crown of an ordinary sized hat, composed of a net work of very numerous vessels, generally adhering to the fundis, or upper part of the gravid or impregnated uterus, and is in technical language called the placenta. See *Labour* and *Uterus*, for more extended information.

AFTER-PAINS. See *Labour*.

AGARIC, White, or the *Boletus laricis* of Linnæus, so called from its growing on old larch trees. This fungus is an irregular spongy substance, extremely light, and was called the male agaric, and given as a purgative, either in substance or in an extract, but is now justly rejected. The Agaric of the Oak, the *Boletus Ignarius*, female agaric, or spunk, or touchwood, was formerly applied as a styptic by surgeons, to check bleeding even in cases of amputation, and is still used as a domestic remedy for that purpose in cases of wounds. The soft inner substance is beaten, to render it still softer. It does not appear, however, to have any real styptic power, or to act otherwise than dry surgeons' lint, sponge, or soft fungus applications. It may occasionally, however, be a useful substitute. For further information respecting the medicinal dietetic and poisonous properties of agarics or fungi, see *Vegetable Poisons*, and coloured plates.

AGRICULTURISTS, that class of society whose designation we have placed at the commencement of this article, must be acknowledged, without disparagement to the other classes, to be one of the most essential, for without their industry in raising food no nation or community

could possibly be maintained. The situation of the husbandman or practical agriculturist (for it is only of them, and not of gentlemen farmers and amateur agriculturists that we now write) has been by some represented to be unfavourable to health and longevity, from his incessant toils, driven often from the extremity of heat to cold, and exposed to all the inclemency of the seasons. Others again have considered his almost constant out-door employment, his breathing the pure air of the fields, and his living on simple and uncontaminated food, as so many combined circumstances which placed him beyond the chance of disease, and formed an almost infallible assurance of a green old age. The truth however, we apprehend, is not to be found on either of these sides. Persons employed in agriculture, however, possess many advantages in point of health; the labour is indeed constant, but not in general so violent as either to exhaust the strength by over exertion or to excite any weakening degree of perspiration. From this last effect of excessive or continued exertion, they are in a considerable degree exempted, from the circumstance of being most actively employed in the spring and harvest, or the wheat seed time, for agricultural labourers are not now much employed in reaping, the corn thus being reserved for labourers of another description.

The variety of the employment is likewise a favourable circumstance; the air they breathe is pure and uncontaminated by any noxious vapours; and the diet, as has been already observed, is in general wholesome; the hours they keep are regular; the mind is, in a great measure, exempted from care and anxiety; and they are exposed to fewer temptations to vice than those who live in crowded cities and great towns. To these circumstances, however, we are not disposed to attribute those instances of old age which occasionally occur among this class; as the constant labour, and the inclemency of the weather, especially in northern latitudes, will wear out the best of constitutions, and extreme old age is more to be ascribed to uncommon strength of stamina, than to fine air and climate, otherwise the effects of these would be more equally felt, and we should find a greater proportion of husbandmen enjoying a fresh old age than we find to be actually the case.

The chronic diseases of cities and great towns are, indeed, almost unknown among this class of society; but they are liable to some other diseases, that prove more rapidly fatal, such as pleurisy, sometimes ending in inflammation and consumption of the lungs, epidemic fevers, colic, and constipation, diarrhœa, cholera, and dysentery: and, with the younger class of agricultural labourers, especially in Scotland, heartburn is a very general complaint. See *Acidity of the Stomach*, and *Heartburn*.

In the fenny districts of England, ague frequently attacks the husbandman, although draining and other agricultural improvements has lessened the frequency of the disease; but in Scotland, ague is almost unknown, except an occasional case, which may have been contracted and imported from England or some other country.

We are disposed to think that some, if not all, of the above enumerated diseases, might not only be mitigated, but almost entirely prevented, by a strict observance of a few plain rules.

We have frequently seen a most severe fit of colic induced by rashly swallowing a large draught of water or beer, or sour milk, when overheated, and afterwards lying or sitting down on the damp grass or ground; and this is a most common disease of the husbandmen where beer or cyder is used as drink, and even sour or stale milk will very readily bring on the complaint. Another fruitful source of colicy constipation, is resisting the calls of nature to evacuate the bowels; and husbandmen, who have a particular portion of work to perform in uniformity with others, often, when they possibly can, put off this natural and necessary duty to a more convenient season. When ale or cyder is used, especially if it is inclining to hardness or acidity, a few grains of ginger added to the draught would have a very beneficial effect, or even the eating of a few caraway or coriander seeds; or the acidity may be corrected without giving any disagreeable taste or quality to the liquor, by adding a few grains of carbonate of soda. Indeed, this addition to beer of a good quality, which has become too hard for drinking, is a most valuable preventive of colic or constipation. Husbandmen, or indeed any class of men who are in a state of perspiration from labour, should never sit down to their meals in that state, especially in the fields. If they have no distance to walk, they should relinquish labour for a quarter of an hour before the dinner or breakfast arrives, and walk gently about for that time, and put on their jacket, or other upper part of dress, before they sit down to eat, and care should be taken to occupy the driest and most sheltered situation, never sitting on the damp earth without interposing some straw, hay, or other dry substance, between them and the earth. There is another custom that obtains among agricultural labourers in some districts, more especially of England, and that is what is called *bolting* their food, or, in other words, swallowing pretty large pieces of beef or pork without mastication or chewing. The evils resulting from this practice are many, and the practice is a most unnatural one. It renders those who adopt it phlegmatic, heavy, and sleepy, and induces indigestion and other disorders of the stomach and bowels, seeing the individual, in almost every case, swallows double the quan-

tity of food which the stomach is competent to convert into healthy chyle, and obesity and gross humours, with cutaneous eruptions, are some of the consequences. This barbarous custom is, we hope, speedily declining before the more extensive diffusion of useful knowledge among all classes, and indeed it is unknown in either Ireland or Scotland, where less animal food is consumed than in England.

Husbandmen should never wear linen as an under dress; the younger part, or those below forty-five, should wear cotton shirts made of the thickest brown cotton, and the elder flannel, above their under cotton ones. The younger may interpose what is called a Guernsey frock, or worsted shirt with sleeves, between the waistcoat and shirt during the winter and spring. The same remarks may apply to drawers of stout cotton to the young, and flannel or serge, or what is better than either for a labouring man, good Scotch plaiding, or stout tweeled flannel. This latter article of dress is of more importance than is generally imagined, as those who line their trowsers, or small clothes, frequently wear them from week to week, or month to month, without washing; and some of these articles never see the washing tub from the time they leave the tailors, till they are consigned to the rag warehouse. Such a custom occasions itchiness, filth, and often eruptions of the lower extremities, which, with a little trouble, and no great expense, might be easily avoided, by wearing drawers and frequently washing and shifting them.

Another and very general custom prevails among this class of labourers, which we have known, in more than one instance, to terminate fatally, and that is, sleeping on the damp ground, nay, sometimes among wet grass, after being fatigued and overheated with labour. Did our limits permit, we could adduce a most affecting case of this kind, of a gentleman farmer, who, from lying among moist newly cut grass for about an hour, after being overheated, was seized with inflammation of the bowels, and died in thirty-six hours' illness. Although such consequences may not always follow sleeping or lying among damp grass, the above example is not a solitary one; and we hope the allusion we have made will have all the good effects it is intended to produce.

Epidemic fevers are common among this class of society; and the late Mr Thackrah, who evinced a laudable and zealous attention to the effects of different trades, &c. on the health of the individuals who exercised them, attributes the frequency of epidemics among agriculturists to the purity of the air they are accustomed to breathe. He considers, and perhaps with justice, that the disease is dependent on a natural change in the constitution of the atmosphere; and he is of opinion, that its effects will be most felt wherever the air is most natural. In towns it is so largely impregnated with animal effluvia, smoke, the dust and gases of manufactories and arts, that it can be but partially affected by the addition from without; consequently, that the townsman inhales but a diluted miasm. Be this as it may, we know from observation and considerable experience, that epidemic fevers abound in the country districts of Ireland to a very great extent; and although many of their cabins and cottages are small, there is no lack of atmospheric air, as some are without doors, or at any rate, have such doors as are little or no obstruction to the introduction and circulation of the air; and the same may be stated respecting the windows, many of which afford a free egress or ingress to the cat or dog, and sometimes even to the poultry.

The epidemic fever, however, of agriculturists if properly treated in its earlier stages, seldom proves fatal; but it requires a very different treatment than the same disease when it seizes on a delicate and sedentary artist. See *Fever*.

Pleurisy, another disease to which this class are frequently liable, we have no doubt is brought on by working too soon, or too hard, after a hearty meal. It generally, however, speedily yields to the application of a sinapism, the size of our page, to the seat of pain; blood letting from a pretty large orifice, and a solution of Epsom salts, say two ounces, and two grains of emetic tartar, in a quart of water, taken in doses of a gill every hour, and drinking freely of weak warm barley-water. See *Pleurisy*.

With respect to the other diseases we have named, especially the kindred affections of diarrhœa, cholera, and dysentery, we shall be very brief, as their causes, prevention, and treatment, will be found at some length under their respective heads. Undue repletion, atmospherical vicissitudes, and the sudden check which is frequently given to cutaneous discharges by the chills sustained by immediate relinquishment of hard labour, especially at meal time, are, we have no doubt, the fruitful sources of those complaints among our labouring agriculturists. That class to which we have already alluded, viz. the *bolters*, can hardly expect exemption from occasional severe attacks of cholera and diarrhœa. Did they but reflect upon the powerful agency of mastication, and its consequences in the preservation of health, they would at once relinquish a practice so destructive to their happiness and comfort, and we will add, so degrading to the characters of men who occupy a most honourable situation in the general arrangements of civil society, and whose labours contribute so very much to the comfort, nay, even the very existence of their fellow men.

Oatmeal porridge, or stir about, or hasty pudding, as it is sometimes called, is likewise swallowed too quickly, and without mastication; and

it were much better if one half of the meal consisted of bread and butter, and milk, than to consist, as it frequently does in Scotland, the north of England, and in some few parts of Ireland, exclusively of porridge and milk.

'It is supposed,' says Dr Adair, 'that a pound of bread, well chewed, carries with it into the stomach near the same quantity of saliva, and through the lacteals about two pounds more, by an addition of the other digestive humours. Hence another great advantage from complete mastication.' But if mastication is thus necessary in the use of vegetable food, or that formed of the farina of grain, how much more when fat pork or beef are employed as articles of diet.

By mastication food is reduced to a soft paste, by which means the stomach is freed from the heaviest part of its labour, and can with more ease extract from the food its most nutritive parts. Those too, who masticate well, require a far less quantity of food, because the nutritive matter in it is employed in greater quantities.

The few hints our limits have permitted us to suggest, and others to be found throughout this work, if acted upon, will do much to promote the health and comfort of this useful class of operatives, whose situation has been indeed much improved, especially since the beginning of the present century; but which yet admits, in many quarters even of Britain, but especially in Ireland, of yet greater amelioration. We hope the zeal evinced by some agriculturists, and great landed proprietors, in the erection of neat and comfortable cottages for agricultural labourers, will acquire a fresh stimulus, and be more generally diffused throughout the United Kingdoms.

'Those whose vanity or ambition,' says a popular writer, 'would induce them to despise such pursuits, ought to be directed to turn their attention to the history of Dioclesian, who, after having governed the Roman empire for a period of twenty years, at last voluntarily resigned the reins of government, retired to his native birthplace, and spent his time in cultivating his garden, from which he derived so much real happiness, that he refused to resume the imperial power.' Charles V., who, including his American dominions, governed a more extensive empire than had ever fallen to the lot of any other man, retired also from power, and, in the latter period of his life, as long as his strength would admit of it, cultivated the plants of his garden with his own hands, and found more true satisfaction in that innocent employment than in all the idle pomp of dignity and power.

AGUE.—Intermittent or Marsh-Fever. *Causes.* This form of fever is generally the product of exhalations arising from marsh-lands, stagnant water, or decayed vegetable substances; it occurs also in debilitated people from poor diet, and from cold united with moisture, however applied to the body. A spurious form of ague also occasionally follows the introduction of instruments into the bladder.

Ague occurs in paroxysms separated by regular intermissions during which the patient is free from fever; each attack is divided into three stages, which follow each other in regular succession.

The symptoms of the first stage are languor, debility, yawning, the extremities become cold, the points of the fingers under the nails are of a blueish tinge, the features are shrunk and livid, the patient has a sensation as of cold water being poured down the back, the sense of cold increases rapidly, the teeth chatter, and there is an uncontrollable tremor of the whole body, with sense of weight in the head, and oppressed breathing; after a time the sense of cold diminishes, the features become flushed and turgid, the pulse rises, becomes quick and full; there is violent headache, hot, dry skin, and hurried breathing; after this has lasted for some time, a sweat breaks out on the head and face, and then over the rest of the body, extending from above downwards, until it becomes general, when the patient usually experiences complete relief, or intermission, as it is termed. Thus the cold, hot, and sweating stages succeed each other in regular order, the whole paroxysm being usually terminated within eight or twelve hours. After a certain period of intermission, the same symptoms recur, the period of return constituting what is called the character or type of the fever; thus in Quotidian ague, the paroxysm recurs once every twenty-four hours; in Tertian every third day, and in Quartan every fourth day.

Treatment. During the cold stage, the best remedies are the warm bath, heat applied to the pit of the stomach and along the spine; and the best method of applying it is by means of bottles filled with hot water and wrapt in flannel, or by bags of hot sand; additional bedclothes, warm diaphoretic drinks, stimulants, such as combinations of laudanum, with ether or camphor mixture, in doses proportioned to the age of the patient; but these last ought to be given cautiously, as they are apt to aggravate the hot stage. Perhaps the most efficacious and safest domestic remedy in this stage, is a stimulating injection containing half an ounce or six drachms of spirit of turpentine; this not only causes reaction, but by emptying the bowels, will often diminish the severity of the hot stage. In robust persons, more particularly in warm climates, and before the constitution has been enfeebled by repeated attacks, bleeding is by far the surest remedy; it cuts short the cold stage by restoring the lost balance of the circulation, and relieving engorgements of internal organs caused by the irregular determinations of blood, and thus it will also diminish the severity of the

subsequent stages, and tend to prevent those organic affections which so frequently follow this disease, but it should never be employed except by a professional man, as it would be most improper in a great many cases. In the hot fit the bed-clothes are to be diminished, saline draughts, and antimonial diaphoretics should be administered, and if the local symptoms run high, bleeding may be had recourse to, always, however, with a due degree of caution.

In the sweating stage the patient is to be kept cool, and when it is over his clothes should be changed, and if he is very weak, a little wine or brandy and water may be given.

But the principal indication in this disease, is, if possible, to prevent, or, at least, alleviate subsequent paroxysms, which is to be effected by proper treatment during the intermission, and this treatment may be briefly stated as follows: Clear out the bowels by means of a dose of calomel and rhubarb, followed in two or three hours by a small dose of castor oil or a slight saline purge, then administer quinine in doses of two or three grains thrice a day, (two teaspoonfuls of Peruvian barks may be substituted if quinine cannot be obtained), and lastly, administer a draught composed of laudanum, or any other opiate combined with camphor mixture, about two hours before the paroxysm is expected to return. It is almost unnecessary to add, that, in ague, as in all other diseases, serious symptoms frequently manifest themselves, and therefore no time should be lost in obtaining medical assistance.

AGUE CAKE. A chronic enlargement of the spleen, the result of congestion, and frequently following repeated attacks of ague, particularly in hot climates. *Treatment*: local bleeding by means of leeches, blisters, and frictions of mercurial or iodine ointments.

AIR, once denominated one of the four elements, and forming the connecting medium between fire and water, is that invisible, expansive, and transparent fluid which we breathe, and without whose presence animal and vegetable nature would not, and could not, exist. This fine fluid constitutes the vast mass of the atmosphere that envelopes our globe, and by ancient philosophers was held to be the principle of all things, or, as has been since sententiously expressed in the language of sacred writ, the alpha and omega of existence. The instant man emerges into this world he inhales this fluid; and the moment his lungs and respiratory organs refuse to receive it, he ceases to exist.

Air, therefore, exerts the most powerful, important, and beneficial effects, not only on the human body, but on the animal and vegetable kingdoms; nor is the mineral exempt from its all-pervading influence. It is, however, chiefly with its influence on man that we have now to do; while in attempting to explain its operations on him, we shall call into our aid its most visible and easily to be understood influences on the other inhabitants and constituents of our globe.

This important agent in the economy of creation, is not, however, as was supposed by the ancients, a pure elementary substance, but is a permanently elastic gas, formed principally by the union of two other gases, mixed in certain and unvarying proportions, that is, in the ordinary elevation as breathed by man, viz. in one hundred parts of common air there is twenty-one of oxygen, the remainder being nitrogen, about one per cent of aqueous vapour, and nearly a thousandth part of carbonic acid. The upper air, where man seldom soars, seems to be composed of a larger proportion of hydrogen, or a fluid of so trifling a specific gravity, that it must naturally ascend to the highest place, where, being occasionally set on fire by electricity, it appears to be the cause of aurora borealis and fire balls. 'It may be easily understood,' says Mr Nicholson, 'that this will only happen on the confines of the respective masses of common atmospherical air and of the inflammable air, and that the combustion will extend progressively, though rapidly, in flashings from the place where it commences; and that when, by any means a stream of inflammable air, in its progress towards the upper atmosphere, is set on fire at one end, its ignition may be much more rapid than what happens higher up, where oxygen is wanting, and, at the same time, more definite in its figure and progression, so as to form the appearance of a fire ball.' 'On the above speculations,' Dr Ure, one of our respected preceptors and friends, observes, 'it may probably be objected, that the air on the summit of Mont Blanc, and that brought down from still greater heights in an aerostatic machine, gave, on analysis, no product of hydrogen. But the lowest height of luminous meteors is prodigiously greater than the highest elevations to which man has reached.'

It is, however, more especially with the common air of our every day breathing that we have to do, and those corruptions of it which exert a pernicious agency on the animal economy, air being a fluid capable of holding other bodies in solution. Oxygen is that constituent principle in air which is the supporter of animal life, and is universally dispersed throughout nature. It is received into the lungs in combination with the other constituents of the air, and performs most important offices in the animal economy. It is supposed to act on purely chemical principles, rarifying, or rather changing the charcoal or carbon of the blood into an invisible gas, which is ejected from the lungs in every respiration, for without this powerful agent effecting this necessary operation, the lungs would become overloaded, and, in the absence of the gaseous stimulant formed by the oxygen, the heart and its appendages would cease to perform their

office; while it is no less certain, that were this ejected gas retained, it would prove equally destructive; it is usually denominated carbonic acid gas, so deleterious in its qualities, that it speedily destroys animal life, and extinguishes combustion. It is a fortunate circumstance, that although chemistry can with difficulty detect its existence in the air, that it may easily be discovered by the most careless observer. If a lighted candle is introduced into a pit, well, or cellar, that has been shut up close for some time, it will be immediately extinguished; and if a room, church, or assembly, is over crowded, the candles will burn dimly, and if ventilation is not employed, or the assembly dismissed, the lights will go out, and the people remain lifeless corpses. A melancholy example of the effects of this gas in unequal proportions, may be found in the too-well authenticated tale of the Black Hole of Calcutta. This gas abounds in great quantities in nature, and is produced by a variety of circumstances. It is frequently generated in the lower parts of deep mines, wells, or caverns, by the decomposition of certain articles contained in such places, and being much heavier than common air, is more frequently found in these situations. A candle or lighted torch carefully introduced, or lowered down into a well, is, as already stated, one of the surest tests of its existence; or if a dog, or any other animal who holds the head down, be thrust into it, it dies immediately, a cruel experiment, too frequently tried in the celebrated Grotto del Cano, near Naples, which proves that it always reposes in the lower stratum. It is also known by the names of foul air and choke damp by miners and others, who are often exposed to its influence. Let it always then be borne in mind, that when the air of any place will not support the flame of a candle or combustion, it will not support animal life.

This gas has, however, been prepared in a liquid form, and, when compressed, exerts tremendous powers. A few years ago, a fine young man of our acquaintance, who was superintending a machine for manufacturing aërated water in Edinburgh, was killed instantaneously by the bursting of a very strong globular cistern, and one of the proprietors knocked down who was at a greater distance. 'Vessels,' says Mr Murray, 'sufficiently powerful to resist its tremendous power have not, however, yet been found, and are likely to interpose a barrier to its practical employment (as a mechanical agent); besides, the liquid gas is found to exude even through metallic cylinders.' Mr M. then introduces a good cautionary remark on the dangers which are liable to accrue to the formation of this and other liquid gases, which it may not be out of place to insert here. 'The preparation of these liquid gases is so pregnant with danger,' says Mr M. 'that their introduction and exhibition in a lecture room are not warrantable under any circumstances. Whatever risk the operator may personally choose to run in his laboratory, he incurs a frightful responsibility in daring to bring the lives of his auditory into jeopardy. It is hoped that the recent melancholy death of Mr Berry will operate as a salutary caution and warning against introducing such dangerous and formidable materials.'

The existence and use of this constituent of the atmosphere, small as is the proportion, is one of those many inexplicable phenomena which is every day met by the attentive student of nature. The carbonic acid gas which is given out by the lungs at every respiration, in the open air or in a ventilated apartment, occasions no injurious effects to man or animals, although it is well known it mixes with the common air. We are not, however, thoroughly acquainted with the means employed by nature for preserving the balance of the component parts of air, or maintaining its salubrity. It is plain, however, that this constituent of air, in addition to other processes by which it is produced, is generated in the lungs by the action of the oxygen on the carbon of the blood, and is thus rendered by the all-wise Creator a mean of sustaining man in existence. While, at the same time, it is equally evident that man placed in a confined situation, and shut up to the necessity of inspiring the condensed gas, or rather more strictly, the air, saturated with this gas, is speedily destroyed by a poison generated in his own body, as was exemplified in the case we have already alluded to —the Black Hole of Calcutta.

Some light may perhaps be elicited on this subject, by a fact established by experiment, that the leaves of plants, which serve them as lungs, perform a vegetable respiration and absorb carbonic acid from the air, while they evolve oxygen, so that what is an aërial poison to man, is of vital importance to plants. This then appears to be one of the means employed for the purification of the air. Plants in a room will increase the portion of oxygen during the day, but at night should be withdrawn, especially from sleeping rooms. See *Bedchamber*.

Nitrogen is another constituent of our common air, and is sometimes called azote. The readiest mode of procuring azote is to abstract its oxygenous associate, by the combustion of phosphorus or hydrogen, or by burning phosphorus in a close vessel, containing common air, whereby the oxygen is extracted, and the nitrogen left: it may also be obtained from animal matters, subjected in a glass retort to the action of nitric acid, diluted with eight or ten times its weight of water.

Azote or nitrogen possesses all the physical properties of air. It extinguishes flame and animal life. Latent heat is evolved and communicated to the blood, constituting what is called animal heat, and this is effected by the changes

resulting from the union of oxygen with the blood, and the expulsion of carbon. Experience demonstrates, that the heat of the blood increases nearly a degree in traversing the lungs, and as it is distributed to all parts of the body from the lungs it diffuses the heat throughout the various organs of the body.

The external impressions or sensations which are denominated heat and cold, occasioned in the one instance by the reduced atmosphere rapidly extracting heat from the surface of the body, and in the other by its confining the natural heat, and obstructing its escape; in either case does the body approximate to the temperature of the atmosphere, for the animal heat of the Esquimaux, in the region of the north pole, possesses the same warmth as the negro of the torrid zone. If a thermometer is applied under the tongue, the heat of each will be found at ninety-eight. In Greenland and other northern countries, the air is so cold as to be upwards of seventy degrees below the freezing point, while in the West Indies, and other parts, it often rises above 100. Man, therefore, is endowed by his bountiful Creator with a preservative power, whereby he generates his own warmth, and without which the body would be frozen to a lifeless statue in the cold regions, and consumed by ardent fever and heat in the warm.

Common atmospheric air contains water, or watery vapour, which varies in quantity according to natural circumstances, but it exists in abundance in the driest season and under the clearest sky. No state of the air or weather proves so injurious to the human constitution as cold and moisture conjoined, while a dry cold air invigorates the system, and warm damp weather seldom proves injurious, nay, there is no place so exempt from diseases of the lungs as a moderately moist climate, which we have demonstrated under those articles immediately or more remotely connected with the prevention and cure of pulmonary complaints.

We have already stated that the human body is endowed with wonderful faculties of accommodating itself to the variety of temperature in the air to which man is exposed in every variety of climate. The two principal circumstances by which we determine the degree of temperature, are, first, the height of any particular place above the level of the sea, and, secondly, its distance from the equator. The first is perpendicular to the surface of the earth, and as we ascend a lofty mountain, or rise into the air in a balloon, for every hundred yards of elevation there is a given decrease of temperature in the air; and if it were possible to continue our ascent until we rose above the atmosphere which surrounds us, we should probably meet with the fixed and uniform temperature of the interplanatory space. This decrease of temperature, according to the height above the level of the sea, will explain why even in the hottest countries we find the summits of lofty mountains covered with vast masses of perpetual snow, and their sides presenting in succession the products of all climes, from the poles to the equator. The other cause of a decrease of temperature connected with the distance of the place from the equator depends on the obliquity of the sun's rays, and the length of time during which he is either wholly absent, or visible only for a short period. Hence the immense distance round the poles where perpetual congelation has bound up both sea and land, and where nature presents for ever to the eye a chill and lifeless waste.

There are then two great points or circumstances influencing temperature—the distance of a place from the equator, and its elevation above the level of the sea,—it is, therefore, not merely its latitude but its elevation that determines the climate of any particular part. This is a most important consideration for those who emigrate from a cold or temperate to settle in a warm or hot climate; for by choosing situations more elevated, and approximating in character to the climate of their native country, they may be enabled to enjoy a temperature more congenial to their feelings. This principle is acted upon in the East and West Indies, and in South America, and many persons who before found a residence in these parts insupportable, are now reconciled to their situation; indeed, even in the neighbourhood of most of our great towns, within the compass of a very few miles, may be found a very considerable variety of climate.

A certain degree of temperature is, however, essential to the support not only of animal but vegetable life, and hence we perceive that nature has adopted provisions to protect both animals and plants from the extremes of heat and cold; all animals, in fact, are provided with more or less covering to enable them to resist cold; and accordingly we find that where they are naturally the inhabitants of countries exposed to considerable varieties of temperature, they appear to suffer very little inconvenience during winter. Not so man: unprovided with any natural covering to shelter him from the chilling influence of a wintry atmosphere, he must have become to a certain extent an hybernating animal, had not his reason and his industry supplied him with clothing and fire to protect him from cold. Nature, or rather the God of nature, for this purpose, bestowed on him the compensating faculty of reason, leaving the rest to his own ingenuity and diligence. Still the body of man, though unprovided by covering, is, when fortified by habit, capable of bearing a great degree of cold. According to history, many nations and tribes subject to a great reduction of temperature during the winter, were in the habit of going almost entirely naked, and we have the testimony

of Julius Cesar, that the inhabitants of Britain lived in all seasons in an almost complete state of nudity. In fact, habit does much towards reconciling animals and even plants to varieties of temperature, but man seems to be pre-eminently distinguished for the facility with which he can adapt himself to its vicissitudes. When fortified by habit he can, even without the aid of clothing, bear a very considerable degree of cold. The naked New Hollander, and other savages of the Pacific and Indian oceans, will rise in the morning from their lair, leaving the print of their body on the grass, even during the season that the ground is white with hoar frost. Civilized man however, by adapting himself to local circumstances, is enabled to live in every quarter of the globe, even as far as the limits of the arctic and antarctic circles. New Holland is one of those countries which enjoys a climate exempt from remarkable vicissitudes of temperature; there are no sudden transitions from heat to cold, nor does the summer differ much from the winter, although there is a considerable reduction of temperature during the night. Here, therefore, it is natural to expect that animal and vegetable life will flourish, and that diseases connected with atmospheric changes will be few in number, and mild in character. In this expectation we are not disappointed, for the forests present an evergreen and perpetual summer appearance, while man enjoys a total immunity from measles, hooping-cough, scarlet fever, and many other diseases with which we are too familiar; and this is the more to be wondered at, seeing that the greater part of the European population of New South Wales were for the early part of their lives devoted to intemperance, and subject to numerous privations.

Although the different tribes of mankind inhale every possible modification of air with a remarkable similarity of results, 'yet, as by habit the most potent poison may be taken in doses that otherwise would destroy life at once; so it is to sudden changes in the temperature, and occasional deleterious impregnations in the composition of the atmosphere, that nine-tenths of its injurious effects on the human constitution are to be attributed.' It is true that the degrees of variety and density have considerable effect on the generality of constitutions, and that drought and moisture are still more important circumstances: but these may be fairly merged in one head—Atmospheric vicissitudes. The sudden transitions from heat to cold, and *vice versa*, which we so frequently experience in this uncertain climate, though doubtless occasioned principally by the absence or presence, or rather the variations of solar heat and electrical changes in the atmosphere, have not been satisfactorily accounted for by natural philosophers. It is our business, however, to trace their operations on the human constitution, and point out the most practicable means of obviating their effects. The mean temperature of Great Britain ranges from about 50 to 52 Fahrenheit, (embracing it from John o' Groats to the Land's End,) it is reasonable to suppose, that when the mercury rises to above 70 in summer, or sinks below 30 in winter, the functions of those organs which are most immediately exposed to atmospherical impressions must be considerably influenced. Observation confirms this reasoning.

In summer we find the functions of the skin or the process of perspiration conspicuously increased, and the urinary secretion diminished. In winter it is just the reverse; the functions of the skin are then confined, and a vicarious augmentation of urine keeps up the equilibrium of the fluids.

The lungs, which are ever in immediate contact with atmospheric air, experience the most unequivocal impressions from the change of the seasons. In summer, when the air is mild and warm, the skin is in a perspirable state, and the fluids determined to the surface of the body, the lungs are free, and the chest expansive. In winter and spring, the fluids are determined from the surface of the body, towards the internal organs, and then the lungs become oppressed, particularly in delicate people, especially the asthmatic, and other pulmonic complaints attain their zenith.

These, however, are only the first links in the chain of cause and effect. With the surface of the body some of the most considerable interior organs sympathise, particularly the lungs, the alimentary canal, and the liver. The sympathy between the skin and this latter organ (or the liver) so frequently noticed in other articles of this work, was first satisfactorily explained by Dr Johnson, in his inestimable work on Tropical Climates (a volume which every emigrant and voyager to these regions should possess). Indeed the sympathy and intimate connection between the process of perspiration and biliary secretion, is a subject of vital importance to all who place any value on the preservation of a sound and healthy constitution.

But the effects thus produced by the rotation of the seasons would occasion little inconvenience were they regularly progressive, as the constitution adapts itself to the gradual revolution.

It is the sudden diurnal rather than the slow annual vicissitude that induces such disturbance in the movements of the living machine, and renders the climate of Britain so disagreeable to foreigners, and deleterious to their health.

By a wonderful innate power, as we have already seen, the human frame can preserve its mean temperature (about 98), although that of the external air may range from zero to 150. But rapid transitions, as before observed, de-

range the functions of the body to a great extent. Another point to be observed is, that the operation of heat and cold predisposes the human frame to be more easily affected by the opposite state. Thus a cold winter succeeding a hot summer, or a hot summer succeeding a cold spring, will render the usual diseases of the season infinitely more severe; and when in addition to these, we have rapid transitions within the twenty-four hours, or indeed within a few hours, then the effects will be conspicuous enough.

To take a nearer view of this important subject. The heat of the blood is generally far above the highest range of the thermometer in this country, but when in summer the mercury rises to 70 or 80 degrees, it is evident that the heat perpetually generated in the system cannot be so rapidly abstracted from the surface of the body by the surrounding air, as when the temperature of that air is low. The sluices of the skin, however, being opened, the superabundant heat is carried off by the process of perspiration, and the temperature of the body is maintained at its usual standard. But in proportion as the range of the mercury is above the mean level (from 50 to 52), and also in proportion to the time it continues there, so will the functions of the skin be preternaturally increased; and when a transition to cold takes place, the exhalents on the surface are the more easily struck torpid, so as to fail in performing the important office in the animal economy for which they were destined. On the other hand, when, from exposure to cold, the vessels of the skin are rendered torpid, quiescent, or collapsed, a sudden application of heat excites them, on the principle of accumulated susceptibility, to inordinate action, or at least dilitation, which will be in all degrees, even to the destruction of organization, as is exemplified in frost-bitten limbs, especially when the fingers in that state are applied to the fire.

These effects, especially those arising in consequence of *transitions from heat to cold*, will be greatly increased by the following circumstances, which have been partially alluded to: First, By the presence of humidity in the air. The human frame, and especially the inhabitants of this country, can sustain considerable atmospherical vicissitudes with a great degree of impunity when the air is dry, clear, and elastic; but if these changes are accompanied by humidity or rain, every valetudinarian, and many in health, are sure to feel the effects. The reason appears to be this, that moisture is a forcible conductor, and consequently, at the moment of transition, the animal heat is most rapidly obstructed by such a medium, and all the injurious effects proportionally increased, as is exemplified every day, when people catch colds and other complaints from not changing their clothes when wet with rain.

The second circumstance is *exhaustion or fatigue*, which, by rendering the circulation languid over the surface of the body, predisposes to the impressions of cold, which then more readily suppresses the perspiratory process, and disturbs the functions of the internal organs.

The third circumstance is *nocturnal exposure*. It would indeed appear that the two preceding circumstances are here combined, for not only is the air more humid in the night, from the condensation and fall of dews or vapours, as well as the absence of the solar beams, but a universal lassitude and torpor seems then to pervade the animal and vegetable creation; so that at this period the atmospherical impressions are doubly injurious.

'In the crowded ball-room (and here we again quote our friend Dr J. Johnson) heated to a tropical temperature, the sensitive belle and effeminate beau carry exercise to the extreme of exhaustion, and, in this state, rush fearlessly forth under the gloomy skies of a hyperborean night! The ghastly train of consumptions which annually follow this imprudent conduct, have no premonitory effect in preventing a repetition of it. Youth ever has been, and ever will be, prodigal of life; and while the sick bed and tomb lie masked under the seductive features of the theatre, the ball-room, and the drawing-room, they will continue to be thickly tenanted by premature decay, and self-destroyed beauty.'

Against the effects of these nocturnal exposures, which society will not avoid, we can only propose such checks as a knowledge of the animal economy suggests.

There are five rules to be observed when we are subjected to the influence of night air; viz., 1st. The condition of the body before going out of doors; 2d. The defence of the body's surface while exposed; 3d. The defence of the lungs; 4th. The exercise on the way; 5th. The conduct to be observed on getting home. The condition of the body, in the first place, ought to be as warm as possible short of perspiration. Many lives are annually lost by the ill-judged caution of lingering about halls, lobbies, and doors of heated apartments, till the body is cool, before venturing into the air. In this state it is highly susceptible of the baleful influence of the night. It would be better to issue forth even with some perspiration on the surface, than wait till the system is chilled. The greater degree of animal heat in which we are in going first into the night air, the less injury will we sustain from it. Under the article *Bathing* this will be found more fully illustrated. In the second place, as this injury is received through the medium of the skin and the lungs, it is quite evident that the safeguard of the former is warm clothing, constructed of materials that are bad conductors of heat, as woollen, cotton, &c.

Thirdly, The defence of the lungs has been

hitherto too much overlooked, though it requires but a moment's reflection to be convinced of the vast importance of this consideration. In the space of one minute, the delicate structure of the lungs is exposed to an atmospherical transition of perhaps thirty or forty degrees, from the over-heated theatre to the freezing midnight blast. Is it not strange that we should have been so very solicitous about heaping fold over fold on the surface of the body, while we never dreamt of the extended surface of the lungs, which we left completely exposed. Is it not still more strange that this should have been forgotten, when daily observation showed that the lungs were the organs which, nine times out of ten, suffered by these exposures? It cannot, therefore, be too strongly enforced the necessity of guarding the organs of respiration from the direct influence of the night air, by such mufflings about the face as may not only detain a portion of the air expired from the lungs each time, but communicate a degree of warmth to each inhalation of atmospheric air. A large worsted net, for example, such as is vulgarly called a comforter, folded loosely round the face, will receive a portion of caloric or heat from the breath at each expiration, which portion will be communicated to the current of air rushing into the lungs at each respiration, and thus a frigid nocturnal atmosphere is in a considerable degree obviated. A very ingenious instrument has been invented by Mr Julius Jeffray for this purpose, called the *Respirator*. The instrument is composed of several plates of metal, perforated by numerous holes, and enveloped in a silk covering, and when worn over the mouth has the appearance of a black silk handkerchief. In the meantime we hope that Mr Jeffray, who has secured the benefit of his invention by patent, will, by an extended sale, find it his interest to reduce the price to the industrious classes, who care but little about the ornamental part of the instrument, so that it answers the purpose for which it is designed.

Fourthly, As we proceed into the night air while the body is warm, so we should, by a brisk pace, endeavour to keep up that degree of animal heat with which we set out, and that determination to the surface which is so effectual in preventing affections of any internal organ.

Lastly, As the sudden transition from a heated apartment to a frigid atmosphere must in some degree produce a determination to the centre, and more or less check the perspiratory process, some warm and moderately stimulating liquid should always be taken before going to bed, in order that the functions of the skin, and balance of the circulation, may be restored. We are not advocates of intemperance, but the late Dr Fothergell of Bath, a member of the society of Friends, used to recommend a warm glass of punch on such occasions. This would be a very proper beverage for those who are accustomed to use spirituous liquors even in a diluted state; but a cup of warm tea or coffee, with a teaspoon full of tincture of ginger in each cup, would produce the same effect; but to those who can afford neither of these, a cupfull of infusion of ginger sweetened, will be equal to either of the preceding. Many of our cotton spinners, who work in a high temperature, and other mechanics, who neither frequent theatres, ball-rooms, or assemblies, often suffer severely by being obliged to hurry home in cold winter showers, without having the means of putting on dry clothes in the morning. In such cases a cup of warm ginger tea, or warm small beer, with as much powder of ginger as can be lifted on a sixpence, will prevent much subsequent suffering. The clothes should be left before the fire, that the industrious artizan may not suffer by the early cold to which he is exposed in his way to the stove in which he is shut up during the day, as the cotton must be spun in a West India temperature, and glass blown, and iron and other metals forged, in a still higher.

Atmospherical transitions being guarded against, other peculiarities of the air unfavourable to health will be easily avoided, with the exception of easterly winds, which in Britain exert so very powerful an influence on the human frame, both mental and corporeal. There certainly is something in an easterly wind, independent of its temperature, which is inimical to the free and regular performance of the animal functions of the skin, for some invalids will feel its effects in rooms, where the temperature is regulated by a thermometer, nearly as much as though they were in the open air. Our own experience has furnished us with numerous examples; among others, the case of a lady, who could tell almost as correctly as the vane of a ship, or the most sensitive weathercock, when the wind changed not only to the east, but in an easterly direction. These observations are old, if not older than Lemnias, who, after condemning the south and east winds, and praising the north and west, says, 'In a thick and cloudy air, men are tetrick, sad, and peevish (aura densa ac caliginosa, tetrici homines, existunt et subtristes, &c.); and if the western wind blows, and there be a calm, or a fair sunshine day, there is a kind of alacrity in men's minds, it cheers up men and beasts; but if it be turbulent, rough, cloudy, stormy weather, men are sad, lumpish, and much dejected, angry, waspish, dull, and melancholy.'

In some situations the west wind, healthful and balmy as it has been considered, is by no means regarded as a friend by either asthmatic or rheumatic sufferers. In sheltered situations on the western coasts of Ireland and Scotland, they would rather meet an easterly than a westerly breeze. The disorders occasioned by the

state of the atmosphere will be found under their appropriate appellations; and many remarks and observations on air, the change of air and climate, will be met in the articles *Climate, Cold, Weather, Pulmonary Consumption, Heat, Flannel, Cotton*, &c., &c., and others previously referred to.

ALBINO, ALBINOS, ALBINISM. The Portuguese appear to have been the first who gave the name of Albino to the white negro, a variety of the human species, as the name imports, literally white. For an account of the peculiarities of the Albino, see *Man*.

ALBUMEN. The best example we have of animal albumen is in the white of an egg, but by albumen is meant one of the radical principles of both animal and vegetable substances.

This principle enters in considerable quantity into the composition of the different parts of animal bodies, especially into the serum of the blood, the humours of the eye, the cellular membrane, the skin, glands, vessels, and even the nails, horns, and hoofs of animals, while it is a prominent constituent of the fluid discharged in dropsy.

The most marked characteristic of albumen is its being coagulable or rendered thick by the application of heat, a fact which is easily exemplified by boiling an egg only one minute or two longer than necessary, when it is converted into a solid mass. Pure albumen may be obtained by merely beating the white of an egg with four ounces of alcohol. The alcohol seizes the water which holds the albumen in solution, and this substance is precipitated under the form of white flakes, or filaments, whose cohesive attraction renders them insoluble, and may therefore be freely washed with water, and the albumen thus obtained is white, solid, insipid, inodorous, denser than water, and has no action on vegetable colours.

The uses of albumen are various, and one of the most important, in a medical point of view, is that of proving an effectual antidote to that virulent mineral poison, corrosive sublimate. A very small dose of this poison will speedily prove fatal, as will be found explained at some length under its proper head; but the whites of one dozen, or even less, of fresh eggs will instantly decompose the solution of the corrosive sublimate, and a precipitate is produced, consisting of calomel, and albumen, which is not poisonous. Mr Denovan, in his excellent little volume, The Treatise on Chemistry, in Lardner's Cyclopædia, says, 'that he found that twelve average-sized hen eggs afforded one ounce and three-fourths of perfectly dry albumen.' There is no danger, however, in administering an extra egg or two. The other uses of albumen will likewise be found in various articles throughout the work.

ALCOHOL is a word of Arabian origin, and in that language signifies any thing exalted to its highest perfection. In medicine, pharmacy, and medical chemistry, by alcohol is understood highly rectified spirit of wine freed from its aqueous particles, and which in its purest state is quite colourless and clear, of a strong penetrating smell and taste. It may be set on fire without a wick, and burns with a blue flame destitute of smoke and soot, or other remanent impurity. The constituents of alcohol are oxygen, carbon, and hydrogen, or it is, in other words, a compound of water and olefiant gas. It is mixable with water in all proportions, and has never yet been frozen in any temperature to which it has been submitted.

Alcohol is much lighter than water, and its specific gravity is therefore adopted as the test of its purity. Fourcroy considered it rectified to the highest point when its specific gravity is 829, that of water being 1000, and perhaps this is nearly as far as it can be carried by the process of Rouelle and Baum simply. Several experimentalists have succeeded in procuring it in a still purer state, or more complete degree of rectification, but in the shops it is generally procured about 835 or 840, and according to the London college it should be 815.

The uses to which alcohol, especially in a diluted state, are applied in medicine, are very numerous, and will be found under their respective heads. Proof spirit is diluted alcohol, and is employed in forming tinctures and elixirs, &c., but although the proof spirit should be diluted rectified spirits, as ordered by the colleges, many trading druggists and apothecaries content themselves with employing common proof whisky, and where it has been properly distilled, and is not adulterated with any foreign ingredient, it answers the purpose in some cases equally well. Tinctures ordered to be prepared with proof spirit, used to be prepared with the best French brandy, which is certainly preferable, but the expense of that liquor now prevents its employment.

Alcohol is frequently burnt in lamps, for the purpose of giving heat in distillation and other chemical processes, and is even sometimes employed for keeping water warm at the tea-table, or boiling eggs.

It is employed externally in lotions, as a refrigerent to arrest inflammation from blows, burns, contusions, sprains, and other external injuries. In fomentations united with camphor, as in the spirit of camphor, as a resolvent, antiseptic, and tonic, and as a stimulant in a variety of cases, which will be found detailed under their respective designations.

Alcohol is the product of repeated distillation from substances which have undergone the vinous fermentations, such as wine, molasses, or sugar, and barley or malt, and other substances containing sugar and starch. That em-

ployed in Britain is generally prepared from ordinary malt spirits by rectification, and that in France and other places, where wine and brandy are cheap, from these liquors.

Alcohol, when combined with ammonia, is called spirit of ammonia, or ammoniated alcohol. For its effects on the human body in health, see *Spirits*, *Intoxication*, *Delirium Tremens*, *Drinks*, as likewise the articles *Brandy*, *Arrack*, *Gin*, *Rum*, *Whiskey*, &c., &c.

ALE. This well known liquor was originally made in Britain of malted barley and yeast alone; and one of our oldest medical authors informs us, that those who put in any other ingredients 'sophisticated the liquor.'

There was formerly a strong prejudice against hops, and they were for a long time considered as a pernicious weed; but they seem, on the whole, when judiciously employed, to be a useful addition to malt liquors. Without hops or some such ingredient, our ale must either be drank new and ropy, or old and sour; and hops make the liquor more light and well flavoured.

A simple form of *Buckbean Ale* will be found in the *Addenda*.

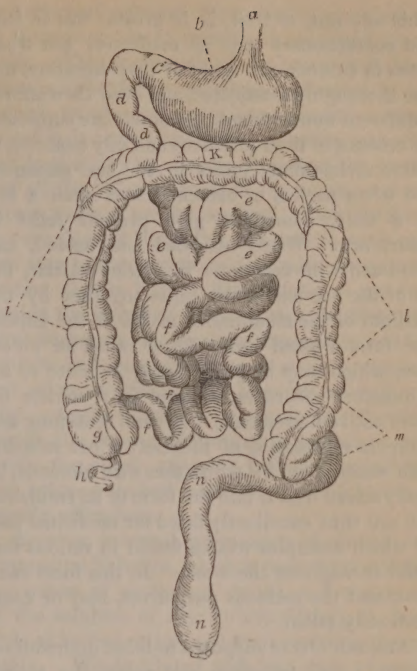
ALIMENT. See *Diet*.

ALIMENTARY CANAL, OR DUCT, is an anatomical term used to designate the whole of that canal which constitutes the passage of the food or aliment through the body, from its being taken in at the mouth to the expulsion of the refuse as fæces. It is characteristic of animal in distinction from vegetable life; plants having no common receptacle for the digestion or separation of their food. This canal is composed of the pharynx, the œsophagus or gullet, the stomach, and small and large intestines, which latter terminate in the rectum, from the pharynx to which is an extent of nearly forty feet.

The appearance and position of the different parts of this canal will be better understood by referring to the accompanying wood cut and description :—

a The gullet, or œsophagus, which is continued from the back part of the mouth to
b The stomach.
c The pylorus, or extremity of the stomach, which terminates at
d d The duodenum, or commencement of the small intestines. The pylorus is thick, and seems to act as a sort of valve to prevent undigested food from passing into the duodenum.
e e e The second part of the small intestine, called the jejunum.
f f f f The third and terminal portion of the small intestine, termed the ileum.
g The cœcum. This is the commencement of the large intestine, and between it and the ileum there exists a valve which prevents the return of any of the contents of the large intestines back into the small. This is called the ileo-cœcal valve.
h A round worm-like process of the cœcum, which is termed the vermiform process.
i That portion of the large intestine, called the ascending colon.
K The transverse colon.
l The descending colon.
m A part of the large intestine which is curved on itself, somewhat in the form of the letter S, and termed the sigmoid flexure of the colon.
n The termination of the large intestine and alimentary canal, named the rectum.

See also the wood cuts in the article *Abdomen*.



ALKALI, OR ALCALI. By this term was originally meant the essence or the whole of kali, the plant from which it was originally prepared, although it is now well known that all vegetables yield it. According to Dr Ure, 'alkalies may be defined those bodies which combine with acids, so as to neutralize or impair their activity, and produce salts. Acidity and alkalinity, therefore, are two correlative terms of one species of combination.' In addition to the peculiar character given in the above definition, they are soluble in water, possess an acrid urinous taste when mixed with siliceous substances, and exposed to an intense heat, they form a more or less perfect glass with acids. As stated in Dr Ure's definition, they produce neutral salts, render oils miscible with water, forming soaps, change various blue vegetable pigments to green, red to violet, or blue and yellow to brown. Blue pigments that have been turned red with acids, are again restored by alkalies to their primitive colour. They emit light on the effusion of the dense acids when freed from water, attract water and carbonic acid from the atmosphere, and unite to sulphur by fusion, and by means of water, and have other characteristic properties unnecessary for us to enumerate.

ALKALOIDS. The active principles of many vegetables, which have received the above name from resembling the alkalies in many of their properties. Thus morphia is the active principle, or alkaloid, of opium; quinina of cinchona bark; and there are many others.

ALLSPICE. See *Jamaica Pepper*.

ALMONDS, SWEET. *Amygdalis Communis*.

This oily nut, or fruit, is in greater use as food and confectionary than as medicine; but when eaten in substance, it is not of easy digestion, unless thoroughly masticated, and even then affords indifferent nourishment. Almonds are supposed, on account of their unctuous and oily qualities, to soften acrimonious juices in the first passages; and when peeled, or blanched, and eaten a few at a time, sometimes give present relief in Heartburn. When blanched and peeled, and triturated with hot water in a stone mortar, the oil of the nut and water unite together by the medium of the albuminous matter of the kernel, and form a bland milky liquor called an emulsion, which may be given freely in acute or inflammatory disorders, or used as a vehicle for more active ingredients. Several tenacious and resinous substances, of themselves not miscible with water, may, by trituration with almonds, be easily mixed with it into the form of an emulsion, and are thus excellently fitted for medicinal use, of which examples will be found in various formulæ throughout the work. In this form camphor, and the resinous purgatives, may be commodiously taken.

Almond Oil is supposed to blunt acrimonious humours, and to soften and relax the solids; and hence its use internally in tickling coughs, heat of urine, pains and inflammations; and externally when formed into a liniment in tensions and rigidity of particular parts. The oil is likewise formed into a pure medicinal soap.

Almonds, Bitter, when eaten in any considerable quantity, have deleterious effects, and have been found poisonous to dogs and smaller animals. They contain a portion of prussic acid, from which they derive their peculiar flavour, and on account of this flavour, are very generally used in cookery; but there are some constitutions in which even the smallest quantity produces unpleasant symptoms.

The medicinal use of bitter almonds is of very ancient date. They have been administered in ague and tape-worm, and with very considerable success in the latter complaint, if Hufland may be credited. In several of the continental pharmacopeias there is a formula for water of bitter almonds, which in every respect resembles cherry laurel water. The oil of bitter almonds is very extensively used by compounders of liqueurs for making noyeau and ratafia, though its effects are well known to be very deleterious. Individuals of bilious and dyspeptic habits should carefully avoid puddings, confections, and liqueurs, into the composition of which either the nut, the water, or oil of the bitter almonds enter. There is no doubt, however, that these nuts and their preparations, might, under judicious management, afford relief in hooping cough and consumptive complaints; but they are too powerful agents for domestic practice.

Indeed, were cooks and confectioners aware of the great danger of swallowing prussic acid in the form of either pastry, puddings, or confectionary, they would cease to gratify the depraved tastes of their employers and customers by administering this most virulent poison. It is no unfrequent occurrence to hear of persons dropping down dead soon after a modern banquet, from which they returned in apparently good health; and the reason why the prussic acid does not operate so speedily in those cases in which it is taken combined with bitter almonds, is the full and distended state of the stomach; for were the same dose taken on an empty stomach, that is often swallowed diluted with liqueurs, almost immediate death would be the consequence. So suddenly does this poison act, even when considerably diluted, that a man who was apprehended for theft, and swallowed about forty grains of the acid diluted with ardent spirits, staggered a few steps, and sunk down without a groan, apparently lifeless. A physician, who instantly saw him, found the pulse gone, and the breathing for some time imperceptible, and after one or two convulsive expirations, he died in five minutes after swallowing the poison. We have noticed this case as a warning; but the effects of this deleterious poison, which generally acts so quickly as to leave no time for relief, will be found more fully explained under the article *Prussic Acid.*

ALOES, a gummy resinous extract obtained from the aloe plant, of several varieties. There are three kinds usually met with in the shops, the Barbadoes, the Cape, and the Socotorine. The two former are chiefly employed by veterinary surgeons and farriers, and the latter only employed by the physician; although a very inferior low priced kind, called the Cape aloes, is frequently sold by unprincipled druggists, for the real Socotorine aloes, which is distinguished from the others by a rather not unpleasant, but fragrant odour, taste very bitter, not unlike that of animal bile, and slightly aromatic, colour reddish brown, with a shade of purple, and the powder of a bright common yellow colour. The mass is hard, friable, and the fracture conchoidal and glossy, and it is soluble in spirit 25 per cent. below proof. The Barbadoes contains a larger portion of resin, and the odour very disagreeable, the taste intensely bitter and nauseous, and the powder of a dull olive yellow. This kind is preferable as a purge for horses. The Cape aloes resembles black rosin, and has a glossy shining appearance; it is by far the cheapest, and is by some in consequence preferred to the Barbadoes.

The Socotorine aloes is a warm stimulating cathartic, in doses of from five grains to twenty, the ordinary dose being twelve or fifteen grains, in the form of a pill; it is emenagogue in doses of from two to three grains, twice or thrice a

day, and a decoction forms an excellent enema in cases of ascarides or small thread worm; and for this latter purpose the Cape or Barbadoes will answer equally well as the other. Although the form of a pill is most convenient, aloes is frequently administered in the form of tincture alone, or in combination with other articles; and the compound tincture, with myrrh or benzoin, sometimes called Wade's or Friar's balsam, is an old popular remedy for recent cuts or wounds, or as a wash for old ulcers.

The continued use of aloes has been supposed injurious to those labouring under piles or hæmorrhoids, and in some of these cases it is so. It is likewise an improper laxative in pregnancy; but Dr Paris remarks, it is one of the best purgatives to combine with opium by those who are in the habit of using that narcotic and constipating medicine. The price of the best Socotorine aloes seldom exceeds sixpence per ounce, and the Barbadoes the same; but the Cape aloes may be had at twopence per ounce.

ALTERATIVES. Those medicines which in particular doses effect a gradual cure by correcting the general diseased habit of the body, without producing any very visible effect, such as purging, vomiting, or sweating, are generally denominated alteratives. They are usually given in small doses, and enter into the circulation without producing any disturbance. Medicines of very opposite character are frequently used as alteratives, such as mercury, antimonials, ipecacuanha, guiacum, sarsaparilla, sassafras, columba, sulphur, &c. &c.

ALUM. This neutral salt is formed by a combination of the earth called alumine, or pure clay with sulphuric acid, and a little potash. Its components are sulphate of alumina with excess of acid, sulphate of potash, and water. The common alum, or alum of commerce, or, as it is sometimes called, English alum, is sold in very large transparent masses, the most extensive manufactory of which is at Hurlet, near Paisley, and the next in magnitude at Whitby in England. Roman alum, known likewise by the name of rock alum, is prepared in the district of Civita Vecchia, and is covered with a reddish efflorescence, and is imported in lumps the size of an egg.

Alum has a sweetish styptic taste, it effloresces in the air, and one part is dissolved in sixteen of water, at the temperature of 60°.

Alum is used in medicine both externally and internally. Dried or burned alum is prepared by melting crystallized alum on a thin tyle, placed over a clear slow fire, until the ebullition or boiling has ceased, it may then be scraped off the tyle and reduced to fine powder and kept in a vial for use. When it is prepared in large quantities, proper vessels are provided, but the above method is sufficient for all domestic purposes. Dried or burnt powdered alum is a cheap and effectual escharotic for excessive granulations in wounds or ulcers, usually denominated proud flesh. The application of the powdered dried alum is likewise an excellent application to inflamed tonsils and acute sore throat; a clean camel hair pencil moistened in water, and dipped in the powder, may be applied to the tonsils and all the inflamed parts of the mouth and the throat, as far as can be reached. Used for three or four days, this practice is certain to put a sudden stop to the symptoms (provided there is no abscess, that is, if the inflammation has not proceeded the length of suppuration or bealing), the fever decreases, the swelling diminishes, and the appetite returns; of course a cooling regimen and saline purgatives will be used in conjunction. Applied in the same manner in inflammation in the bottom of the mouth and gums, and inside the cheek, attended with stiffness of the jaw, before gum boil takes place, it will be found equally efficacious.

Another external preparation of alum is the Compound Solution, which is made by dissolving one ounce of alum (not dried), and one ounce of the sulphate of zinc (white vitriol), in three pints of boiling water, and then straining the solution. When diluted with two parts of water to one of the solution, it may be used as a wash for the eye in ophthalmia, and an injection in gleet and leucorrhea. A solution of one dram of alum in two ounces of water and two drams of the spirit of camphor, added to the filtered solution, has been used as a wash for cancerous sores. The following is another valuable form in which alum may be employed:—Alum and sulphate of copper (blue vitriol), each one ounce; water, eleven ounces; sulphuric acid, four drams by weight; boil the alum and sulphate of copper in the water to dissolve them, and after the solution is filtered add the sulphuric acid. This is a powerful astringent, and used to stop bleedings at the nose, by the application of dossils of caddis or thin linen rag steeped in it being put in the nostrils. Rags two or three times folded wet with this solution may likewise be applied and kept wet over any wound where the bleeding is profuse, conjoined with pressure.

M. Sonty, in a report he made some years ago to the Minister of the French Marine, mentions his great success in the treatment of a most violent and rapidly destructive epidemic, purulent ophthalmia, in the East Indies. At first he had employed antiphlogistic measures, but they entirely failed, or rather the disease was too intense to be quickly enough affected by them. The natives employed very stimulating applications; as, for example, a mixture of pepper, lemon juice, and the juice of tamarind leaves, to which is added afterwards roasted walnuts; this paste they applied round the eyelids. M. Sonty soon found out the miraculous good effects of rock alum. He took a piece which he kept

stirring for eight or ten minutes in the white of an egg, which he then puts in a fine muslin bag. When this is to be used, the patient's head must be held back, and while the eyelids are kept open a few drops of the liquid are to be squeezed from the bag upon the eye. The operation must be repeated very frequently, in some cases every half hour. The same treatment is applicable in all the stages of the disease, and generally cures it in from twenty-four to forty-eight hours. *Archiv. Gener.* Alum has likewise been long employed internally, in a variety of complaints, and has been used as a powerful tonic and astringent. It is formed into *whey* by boiling two drams of the powdered crystals with one pint of warm new milk, till it is curdled, and then carefully separating the whey; a cupful is to be taken occasionally. Four drams of alum and one of kino being rubbed into a fine powder, and from ten to fifteen or even twenty grains of this powder may be given thrice a day in jelly, jam, conserve of roses, or treacle. It should not be taken in a liquid, as the solution of alum is decomposed by the solution of kino. These two medicines—the whey and powder—are very useful remedies in discharges from the womb, such as a too frequent return of the menses, or their too great abundance, or to check the flooding which pregnant women are sometimes subject to. They are also sometimes useful in that very distressing complaint flour albus. In milder cases the whey may be used in divided doses of a wine glassful three times a day, and in more obstinate cases, the powder in the largest dose as above directed. Dr Percival recommends alum in powder, in doses of from five to twenty grains, to be repeated every four, eight, or twelve hours, in cases of colica pictonum, attended with obstinate constipation, and when the means we have recommended in that disease cannot conveniently be procured, alum may then be had recourse to.

In addition to what we have already stated respecting its application to inflamed tonsils, we may add that it may likewise be used in the form of gargle in inflamed sore throat, half a dram may be dissolved in a gill of boiling water, an ounce of honey or the same quantity of sugar, and the solution strained; to the strained solution thirty drops of elixir of vitriol may be added. This forms an excellent and easily procured gargle.

In inflammation of the eye a poultice may be formed, somewhat different from the application employed by the French surgeon, by beating up half a dram of fine powdered alum with the whites of two eggs, till they form a coagulum, which may be applied to the eye in a lawn or thin mull muslin bag, and will be found preferable with children, who will struggle desperately before they allow dropping the moisture of the poultice directly into the eye. This poultice, or one of alum curd formed in making the whey, is often very efficacious in purulent ophthalmia, or where there is a discharge of white or glary substance from the eye. Combined with the decoction of oak bark, alum is used as an injection in cases of fluor albus (see *Oak Bark*), and in cases of gleet, as an injection, in the proportion of two grains to every ounce of common or rose-water.

Alum, too, is extensively employed in the arts, especially in dyeing, and for some purposes the dyers prefer the Roman to the British. If wood is soaked in a solution of alum, it does not easily take fire, and the same may be said of paper impregnated with it, which, owing to that quality, and likewise its excluding moisture, is fitter to keep gunpowder. Paper thus impregnated, too, is useful in whitening silver, and whitening brass without heat. Alum mixed in milk, helps the separation of its butter, and if added in a very small quantity to turbid water, clarifies it without imparting any bad taste or quality. When added to tallow it renders it harder.

Bakers sometimes mix alum with dough, to render the bread white; and this mixture indeed produces bread better adapted for weak and relaxed bowels, but in the opposite state of the alimentary canal this addition is highly pernicious. It is largely employed by ginger bread bakers.

AMAUROSIS, OR GUTTA SERENA, an obscurity or total loss of sight or vision, arising from a more or less insensible state of the retina, or partial or total loss of sight from other causes than those which obstruct the passage of the rays of light to the bottom of the eyes.

Symptoms. The first symptoms of this disease, which occurs at all the stages of life, but most frequently in those who have passed the meridian, are a want of proper control over the eye affected, the pupils of the two eyes not being directed harmoniously to the objects looked at, with a staring vacancy in the patient's countenance. In some cases these symptoms exist at first only in a very slight degree; but in others they amount to an actual strabismus or squinting; while in not a few, the patient is incapable of exerting any control over the affected eye, which rolls or oscillates, or stands quite motionless in the orbit; and even in a few cases, the eyelids are paralyzed, sometimes the upper and sometimes the lower. Although these are the most common symptoms observed on an attack of amaurosis, there are others which ought not to be overlooked, as they will prove a warning to the patient and his friends, and induce them to take early steps for arresting the progress of this most afflicting disease.

Objects are perceived through a kind of mist or cloud, which gradually becoming thicker and thicker, ultimately renders them imperceptible.

Objects again appear to be seen with tolerable clearness, but yet they are not properly distinguished from each other; the patient, attempting to read, finds that the letters run into each other, or that the lines of the print appear to be multiplied; sometimes the form of the letters, or the objects he sees around him, are distorted and changed; and sometimes the colours of the objects are essentially altered. Instances there are too, in which the patient can see only the half of an object before him, and can discern the true state of the one side, while he cannot those of the other. A very common symptom, and often one of the first, is the appearance of aerial spots, clouds, specks, and imaginary objects, which appear to float before the eye.

The disease being fully developed, and vision nearly lost, there is a peculiar stare to which we have already alluded, which peculiarly denotes the existence of amaurotic blindness. But the most striking symptom of amaurosis or gutta serena, is a permanently dilated state of the pupil; but this symptom is not found under all circumstances, for there are instances when, instead of being dilated, the pupil is contracted.

One eye is only, in general, affected at the commencement of the disease; but it soon makes its appearance in the other, unless its progress is checked by suitable means. This is not, however, always the case; but in the great majority of instances it takes place, first in the one, and then in the other, if the original cause be not removed, or its effects obviated.

Causes. With the proximate or efficient causes of this or any other disease, we have little to do in a work on domestic medicine; but were we even to enter on this division of the subject, we should find considerable difference of opinion to exist.

That the disease is hereditary there are few who have studied the subject, or had any ordinary share of experience in its treatment, that at all doubt; and the celebrated German oculist, professor Beer, states that he traced it in several families, in one of which, through three successive generations, and particularly in the females of that family who had not born children, it having appeared in them at the cessation of the menses; he also states that dark eyes are much more liable to it than the light, in the proportion of twenty to one. Considering the delicate structure of the retina, and its relation to the optic nerve, of which it is an expansion of great tenuity, it can be no matter of surprise that it suffers from inflammatory affections, and those most frequently induced by over exertion of the eye. There are numerous examples of this among artizans, and others whose occupations are attended with an habitual straining, and in whom the effort of the eye is continued for a great many hours of the day: lapidaries, jewellers, watchmakers, mathematical instrument makers, compositors, engravers, tailors, milliners and mantua makers, and a number of other trades subjected to the same severe and long-continued exercise of the eye. In all these the retina is excessively fatigued, the degree of exertion is continued for a greater length of time than the organ is capable of bearing, while it is employed on objects that require close attention and continued straining of the eye. The effect of this excessive exertion is, of course, greater in the instance of persons of very robust frames and full habits, and those who indulge in eating and drinking so as to induce a determination of blood to the head. Indeed, the effect is greater when, in conjunction with these habits, persons lead very sedentary lives, and neglect active out of door exercises. In addition to the over-exertion of the mental faculties, especially if connected with literary composition, where the student acts as his own amanuensis; long continued grief and mental anxiety; the cessation of ordinary evacuations, as the hæmorrhoids and the menses in females; the sudden suppression of bleeding from the nose, when it has become regular and periodical; the too speedily drying up of discharges from the skin; a disposition to, or frequent attacks of gout and rheumatism; excessive sexual indulgence; masturbations; prolonged nursing or suckling, (and we have known this latter cause operate most powerfully on the eyes of mothers who have suckled their children for nearly two years;) fluor albus; and, in fine, any exposure to the too bright rays of the sun, or the glare of red hot iron or flame.

There is, however, another class of causes, and these are peculiar to artists, painters in particular, who suffer from amaurosis occasioned by the absorption of lead, and M. Duplay observes, 'that when this disease follows painters' colic, it comes on suddenly, and almost instantaneously; that it happens only after several attacks of colic; is sometimes isolated, but most frequently accompanied by other nervous complaints; that the only local symptom is dilatation and immobility of the pupil; that contrary to the other forms of the disease, it is complete in a few hours; it may continue only a few hours, or may last several months, but it rarely becomes permanent in its duration, and does not depend on the number of relapses, and it is generally unaffected by the treatment adopted for the removal of the colic. *Archives.*

In fine, the eye sympathizes with every organ of the body, and its sympathy with the stomach was not overlooked by the wise king of Israel, when he inquired, 'Who hath redness of eyes?' Narcotics of every name and description, especially the excessive use of tobacco and snuff, are fruitful sources of this disease; while the latter, if prudently employed where the discharge from the nose has suddenly ceased, would prove a preventative if not a cure.

In a work like this we cannot be supposed to institute scientific inquiries into the causes of diseases, but only those most obvious to an unprofessional observer, and therefore we will only add, that amaurosis may be occasioned by blows on the eye or head, and by various diseases within the head, affecting the functions of the optic nerve.

Individuals of all ages, and under all circumstances, have been subjects of its attacks. It takes place in children, occurring at all periods down to old age.

When the cause is evident, and the patient under forty, or in the prime of life, a favourable termination, under proper treatment may be expected. A suddenly formed amaurosis is generally less unfavourable than one that has developed itself slowly. Complete inveterate amaurosis, attended with organic change of the retina or optic nerve, may be deemed incurable. The distorted appearance of objects in the early stage is always a bad omen, because indicative of disease in the brain. If the disease be attended with want of power in the muscles of the eyeballs or eyelids, we should suspect that the cause consists of general or partial pressure, or other organic disease within the cranium, which although indicating both danger and the permanent loss of sight, may sometimes be removed by energetic treatment.

When the disease occurs in a person of plethoric habit, and is attended by signs of determination of blood to the head, such as headache, vertigo or dizziness, flushed countenance, and arterial throbbings of the temples, the pulse full and the subject young, general and local bloodletting and purgatives with low diet, should be employed; in fine, the strictest antiphlogistic treatment.

If the case be altogether dependent on an increased flow of blood distending the vessels, then these means may alone effect a cure, and if along with fullness there be effusion and consequent pressure on the optic nerve, blood-letting and purgatives are the most likely means of relief, and prepare the patient for other remedies, especially the use of mercury. Indeed mercury checks as effectually the progress of inflammation of the retina as it does that of the other membranes and coats of the eye, whether that inflammation be chronic or acute. 'In order to derive the full advantage which the remedy is capable of rendering, it is necessary,' says Mr Lawrence, 'in these cases to produce its peculiar action on the system, and sometimes to keep it up for several weeks. It is not sufficient to render the action of mercury sensible on the mouth, and then to discontinue it, but we must often produce and keep up pretty free salivation for some weeks, in order to derive all the benefit the remedy is capable of affording.'

When amaurosis depends upon disorder of the chylopoietic viscera, or organs of digestion, habitual costiveness and increased flow of blood to the head, as already stated, purgatives assisted by bleeding are found to answer better than nauseating doses of emetic tartar (or tartrate of antimony). Five grains of the blue pill may be given every night and a mild saline aperient in the morning, and after having continued this treatment for some time, tonics may be used with advantage, as elixir of vitriol, decoction of bark, and preparations of iron, especially the ammoniated tincture, which may be given in doses of thirty drops three times a day, gradually increasing the dose to fifty or even sixty drops.

Emetics, especially emetic tartar, have been recommended by Scarpa and others, in such doses as will produce full vomitings, but some celebrated British oculists, such as Lawrence and Travers, deny the utility of the practice. In the case of amaurosis, as well as in other cases, the remedy must be adapted to the circumstances of the case; if the affection appears in a robust person of full habit, or in a young person or one not beyond the middle period of life, then the antiphlogistic treatment already described is to be employed and followed by the free use of mercury, but under other circumstances, when the patient, even if in youth, is delicate and nervous, bleeding and mercury must be used more sparingly.

'Suppose the case,' says Mr Lawrence, 'to be one of an elderly female, who has injured the eyes, by excessive application to needlework, a thin spare and sallow person, who, by a sedentary mode of life has brought on an inactive condition of the alimentary canal: who, by keeping constantly within doors, and by the nature of her occupation has considerably weakened the nervous system, we would not think of proceeding to such active modes of treatment. We might find it necessary to apply a few leeches to the temples, or perhaps not take away any blood, but we would endeavonr to put a stop to the exciting cause, enjoin repose, administer alterative doses of mercury, as the blue pill, or Plummer's pill, with mild aperients, and perhaps tonics, and order a change of air.' In the treatment of these cases, what is called counter-irritation is sometimes a useful auxiliary, and it is often necessary, in conjunction with other means, to apply a blister behind the ear, or on the neck, perhaps every five, six, or seven days, during the time the other treatment already described is employed. Electricity has been recommended under a notion that the defective state of vision arises from a kind of nervous weakness of the eye, which might thus be amended; but electricity is no more capable of putting a stop to inflammation of the retina than of any other part or texture of the body. Indeed there is no ground for imagining that electricity acts as an antiphlogistic.

There is an error, however, which the amaurotic sufferer will do well to avoid, and that is—the use of stimulants and tonics, both in the shape of medicine and diet, which are often resorted to, from the idea that the disease originates in weakness and debility, and nothing is more common than to hear patients saying they are weak, and therefore their sight is 'weak.' Many an eye has been lost from this cause.

Amaurosis is, however, one of those diseases where an early application to the most experienced oculist is absolutely necessary, where such a person is within reach; and happily this and other diseases of the eye are much better understood, and more successfully treated, than they were even at the commencement of the present century.

By perusing with attention the article on the Anatomy of the Eye, and referring to the cut, illustrative of the structure of that organ, unprofessional readers will easily understand the terms used in describing this disease. See *Night-Blindness, Near-Sightedness, Ophthalmia, Purulent Ophthalmia*, &c. &c.

AMBER, is a resinous yellow coloured inflammable substance, which Werner has divided into the white and yellow; but there is, says Dr Ure, little advantage in the distinction. Except when heated or rubbed, it is insipid, generally in fragments of a pale golden yellow colour, transparent, has a shining lustre, a conchoidal brittle fracture, is insoluble in water, and slightly acted on by alcohol. Its ultimate constituents are the same with those of vegetable bodies in general, viz., carbon, hydrogen and oxygen; but the proportions have not been accurately ascertained. Numerous conjectures have been made respecting this substance, into the details or consideration of which our limits will not permit us to enter. It becomes strongly electric by friction, and from this property it derives its name.

Oil of Amber. This is distilled from amber with a very gentle heat, and rectified. It has a strong fetid bituminous odour, and a pungent acrid taste, soluble in water, and imperfectly in alcohol, nearly colourless at first, but becomes brown by keeping.

Its virtues are antispasmodic, diuretic, rubifacient, and stimulant.

It is used in epilepsy, hysteria, and other kindred affections, and in deficient menstruation. Externally alone, but more frequently in combination, as a liniment in paralysis and chronic rheumatism of the joints, it is said to form the principal ingredient in Roche's embrocation for the hooping cough. The following has been recommended as a friction in tic doloreux: oil of amber, an ounce; laudanum, half an ounce, mix.

When the rectified oil is ordered internally, it is given in doses of from five, to ten, or fifteen drops, rubbed into an emulsion with mucilage of gum arabic, simple syrup, and pimento water.

The oil of amber likewise enters into the composition of the succinated spirit of ammonia, *succinum* being the Latin name for amber, and the name by which the acid is likewise designated, *succinic acid.*

Amber is, however, an important ingredient in the composition of varnishes, and is employed in the elegant and useful arts.

Those who wish to see a more full account of its history, we refer to Ure's Chemical Dictionary; and a succinct but very interesting account will be found in the first part of the Conversations Lexicon.

AMENORRHEA. This may be defined the suppression of the menstrual discharge, after it has once been established.

Under this head some authors have described two species of the disease: First, where the menses do not appear at the usual age; and second, where they have appeared, and from some cause or other have been interrupted. It is, however, only the latter of these we shall consider under this title, as the first species will be more appropriately discussed under the article *Menses*, in which a general history of the function will be found.

Amenorrhea, or suppressed menstruation, is a very frequent complaint, not only among delicate and sedentary females, but even among the more robust, and those who are subjected to frequent exposures to bad weather, although there is not a more frequent cause than sluggishness or inactivity.

When the menses have once been regularly established, they are not always exempt from irregularity. There are many women who signalize the period by insufferable pains, which come on some hours previous to, and continue some hours after, the menstrual appearance, sometimes, however, only during the period of the discharge; and in some they even continue for some time after its termination. In some females the most trifling cause will occasion a suppression for some months. Cold, especially at the period of the discharge, and grief, and great mental anxiety, are fruitful sources of the disease. Cold, especially attended with wet, during the period, is, however, the most common cause of the disease in those females who are otherwise of a stout hale constitution, and this occurs more frequently in rural districts than is generally imagined. Ladies in the middle and higher classes, who expose themselves at an improper period to a sudden change of temperature, are, however, very liable to amenorrhea. When suppression has existed for a short time, the patient feels heavy and listless, there is a fullness about the lower part of the abdomen, and a sense of weight accompanied by dull pains in the loins. An aversion to exercise, and a firm conviction in the

patient's mind that she is incapable of exertion, are constant attendants on the disease. The disease often continues for years; and in other cases the discharge will return in two or three months. In married females it is frequently mistaken for pregnancy; and it is only by suffering its indurance for the usual period of gestation, that the mistake is discovered. In some cases pain is felt at the usual period when the discharge should appear, and when this symptom exists, it forms an excellent index for the application of remedies.

This disease is not however to be confounded with those cases of protracted menstruation, in which the discharge never appears oftener, during a whole life time, than every fourth or sixth month, and even only every third or fourth year, sometimes suffering continually during the period, and at other times enjoying perfect health. M. Lesfranc mentions three young women who never became pregnant, and who menstruated only at protracted periods, whose cases we have more particularly alluded to under the article above referred to.

Treatment. When suppression exists in a young plethoric female, who had been previously in good health, the lancet should be employed and blood taken from the arm at intervals of a few days. The bowels should be kept open, first with the infusion of senna and Epsom salts, taken in doses of four ounces by measure, night and morning; after a second bleeding, the quantity drawn being from eight to twelve ounces, according to the state of the pulse and the patient, and the infusion continued till that period, or one or two days before the discharge should appear. The pills of aloes with myrrh may then be substituted for the senna and salts, and taken in doses of three ordinary sized pills at bedtime, and thirty drops of the ammoniated tincture of iron, three times a-day, in a wine glass of cold water. A calculation should be accurately made of the precise time the menses should have appeared had no suppression taken place; and two days previous to that period, a large tea spoonful, or a desert spoonful, of mustard seed is to be swallowed every morning fasting, moistened with cold water. The seed is not to be masticated or chewed, but swallowed whole. Two sinapisms, of the size of a crown piece each, are to be applied in a bag of thin muslin, to the lower part of each breast, and allowed to remain for nearly an hour; the pills of aloes with myrrh are likewise to be used, and the tincture of ammoniated iron. If the menses do not appear in the course of two or three days, the sinapisms may be again applied to the breasts, close to the spot where they were first applied, and allowed to remain the same length of time, still continuing the internal use of the mustard seed, the pills, and tincture. No alarm need be taken at any swelling or irritation of the breasts from the application of the mustard, as it will speedily subside. The internal use of the mustard seed may be continued for a week, at the time menstruation should have occurred; and if this treatment does not prove effectual, the pills and ammoniated tincture of iron may be continued as before, until the next period, when the mustard seed may be again used as above directed; and in place of the sinapisms, a leech applied to each breast every other day, beginning on the day (as near as can be calculated), or two days before the discharge should have appeared in regular course. The patient should take active exercise in the open air, and on horseback, if possible, and every scheme be employed to divert the mind by rational and healthful amusements. This plan we have found effectual in numerous cases; and where it does not succeed, some organic disease may be suspected, if the patient is not otherwise in good health.

When the sedentary and more delicate female is subjected to suppression, and becomes the victim of amenorrhea, a somewhat different course from the preceding must be pursued. The bowels should first be thoroughly opened by a draught composed of six drams of the simple tincture of aloes, combined with two drams of the simple tincture of rhubarb, in a wine glass of ginger tea. In cases of suppression in the delicate and sedentary, blood-letting is seldom necessary, and the attention of the practitioner ought to be chiefly directed to the state of the stomach and bowels. As much as can be lifted on a sixpence piece of the compound powder of Columba may be taken twice or three times a-day, in a glass of water or peppermint water, or peppermint tea, or pennyroyal water, or pennyroyal tea, and one of the following pills thrice a day.

Socotorine aloes,
Extract of genlian,
Insulphate of iron, of each half a dram,
Cayenne pepper, fifteen grains,
Beat into a uniform mass and divide into thirty pills.

The same directions respecting the calculation of the period at which menstruation ought to take place, are to be observed, and the same means employed at that time as in the case of the more robust and plethoric. One leech, however, may be sufficient, instead of two, as directed in the other case, and the leech applied alternately to the right and left breast.

'There cannot be a stronger evidence than this of the sympathy which exists between the uterus and mammæ (or breasts). Of this Hippocrates was well aware, for we find him applying dry cupping glasses to the breast in cases of flooding. In the present case we perceive, that if two leeches be applied to the lower part of each breast, every second day, for a month, at the termination of the third week the breasts swell to an unusual size, and menstruation appears

soon afterwards. From this experiment we may deduce a curious and important fact, that the periodic abstraction of blood from a part increases its vascular action and developement, for we see the application of leeches producing fullness of the breast and turgescence of the nipples.' The following formula, used by Dr Elliotson in cases of amenorrhea, as an enema, is by no means entitled to originality, but this does not detract from its value, and it may in almost every case, unless where some disease exists in the rectum or termination of the bowels, be used not only with safety but advantage; it differs little from the formula recommended in many cases throughout this volume:

Oil of turpentine (sometimes called spirit of turpentine) half an ounce.
Grit or oatmeal gruel, one pint.

'It is well to mention,' says Dr E., 'that a small quantity of blood was taken from the arm in each case. The injection in one case produced the menstrual discharge in four days, though it had been absent four months. In another case the patient was relieved in seven days. Dr E. has employed it in one instance without any benefit.' In cases of the sedentary and debilitated, enemas may be used in many cases with great advantage, but the frequent abstraction, even of small quantities of blood, in delicate constitutions is questionable; debility will not, however, follow the abstraction of small quantities from the breast by leeches, as it would small and frequent repeated bleedings from the arm. The simple decoction of aloes may likewise be used as an enema in cases of amenorrhea, in the quantity of four ounces at a time, and repeated daily, or every second or third day, in conjunction with other means. (See *Aloes* and its preparations.) The same remarks will apply to enemas of emetic tartar, in the proportion of ten grains to four or six ounces of warm water, and administered as the preceding; and likewise to an enema of the oil of savin, thirty drops of which may be rubbed up with an ounce of mucilage of gum arabic, adding gradually four, six, or even eight ounces of infusion of mug-wort, worm-wood, pennyroyal, or rue.

M. Majon, in the *Gazette des Hospitaux*, recommends carbonic acid fumigations twice a-day during the time immediately preceding the menstrual period, and affirms, that not only the course of the menses are regulated, but the pains also which precede, succeed and accompany them, are prevented, and that he has employed carbonic acid in amenorrhea, accompanied with acute pains of the loins and uterus with the happiest effects. This is not likely to be tried in domestic practice in Britain or Ireland, although it may be done with a very simple apparatus; the elastic tube of an enema apparatus, or stomach-pump, may be oiled and introduced into the vagina, and the other end connected with a bottle in which there is a mixture of chalk or lime and sulphuric acid, from which carbonic acid will be disengaged, and pass along the tube to the uterus. Or the gas could be collected in a bladder with a stop-cock and tube, such as an elastic gum catheter affixed, and injected by a female assistant. Those not sufficiently conversant with the simple process could easily procure a common or elastic gum bag or bladder, filled with the gas, at a very trifling expense, of any regular chemist or apothecary.

Iodine and the ergot of rye have been extolled as modern remedies, in this disease, but they are not safe agents, especially the former, in the service of the domestic physician, and may therefore, in that instance, do more harm than good.

In addition to these medical means the warm bath may be used every third or fourth day, and a regular and nourishing diet adopted, avoiding oily and fat substances, cold, raw fruits and vegetables, and rich and indigestible pastry, especially the crust of pies and tarts; in fine, every article of diet which the patient's experience tells her is oppressive or disagreeable to the stomach, however palatable it may be to the taste. Exercise, too, is a most indispensable mean of cure in this disease; walking, swinging, and riding on horseback, the latter is a preferable mode of exercise where it can be adopted, but as the lower extremities remain almost quiescent in a female equestrian, a brisk walk should be taken immediately on alighting from the saddle. An active attention to domestic affairs, and a lively and easy frame of mind, will be found among the most effectual means the patient can adopt. Indeed every mean should be employed by friends and relatives to eradicate the tendency to indolence and inaction, which is the constant accompaniment of amenorrhea.

Patients labouring under this disease should be encouraged and taught not to despair of a cure, because in numerous instances cures have been effected even in the cases of married females, who, after undergoing several years of despondency and debility, have menstruated and had families.

AMMONIA, OR VOLATILE ALKALI, in its pure state, is a transparent, colourless, and consequently invisible gas, possessed of elasticity and the other mechanical properties of the atmospherical air. A saline body, formerly brought from Egypt, where it was separated from soot by sublimation, but which is now abundantly manufactured in Britain and other countries and known by the name of *sal ammoniac*, readily produces, by a chemical process, pure ammonia.

It is not, however, our province to enter into detail on the mode of preparing this powerful and useful gas, as it is seldom prepared by the

apothecary or druggist, being manufactured on a large scale by the trading chemist.

This gas has an exceedingly pungent smell when combined with water or spirit, and is well known by the old names of the spirits of hartshorn and volatile spirit, and now by those of liquor or water of ammonia, and ammoniated alcohol. This gas is readily absorbed by water; and, according to Sir H. Davy, water absorbs 670 times its volume of gas.

Ammonia, or ammoniacal gas, retains all its characteristic medical properties in the different formulas in which it is ordered to be prepared in the pharmacopeias. It is a very powerful stimulant, capable of being exhibited only in small doses; and when it is applied to the skin, is no less active as a rubifacient; but as a medical agent, it is more useful in union with carbonic acid, composing a carbonate, or rather a sub-carbonate, when it assumes the solid form, and still retains the properties of a powerful stimulant, although less violent than in its pure or caustic state, and is therefore used in the following forms:—*Carbonate*, or *Sub-Carbonate of Ammonia*. This preparation, as sold in the shops, is in white streaked crystallized pieces, with a pungent ammoniacal odour and taste, and is also known by the name of volatile salts. It is soluble in two parts of water, but insoluble in alcohol, and effloresces in air; and by the exposure it is converted into a bicarbonate, from the escape of pure ammonia.

Its effects on the human body are stimulant, antiacid, diaphoretic, and antispasmodic, and is used in heartburn, hysteria, dyspepsia, and chronic rheumatism, and is applied to the nostrils in syncope, or fainting. For this latter purpose it is sold in small bottles, under the name of *Smelling*, or *Volatile Salts*. Its dose is from five grains to a scruple, and is generally employed in the form of a pill. A scruple, with as much soft extract of camomile flowers, or gentian, as will form it into six pills, is an excellent medicine in cases of indigestion attended with acidity, and likewise in rheumatic affections where the stomach is weak. Two of the pills may be taken half an hour before meals. It will require a little powder of ginger to give the mass consistence; and the pills should be made every day, or every second day, and kept in a close small box, as the ammonia readily escapes. It is likewise given in any bland fluid, such as barley or rice water. (See *Rheumatism*). In the new London pharmacopeia, this preparation of ammonia is called the *Sesqui-carbonate of Ammonia*.

This salt is employed by bakers, especially pastry and gingerbread bakers, for the purpose of producing light and porous bread from spoiled or sour flour; for our own part, however, we have no objection to its employment, whether the flour is sour or sound; for although Mr Accum and some others would endeavour to make the public believe that every baker and victualler, of every description, is an assassin, we are yet disposed to form a more charitable conclusion. This salt, which is converted into a gaseous substance, and is entirely volatilized during the operation of baking, causes the dough to swell up into air bubbles, and thus renders the whole substance very porous, or, as it is commonly termed, *light*. Now, instead of warning our friends against the use of carbonate of ammonia, or volatile salts, by bakers, we advise them, especially in wet seasons, when the wheat has been partially malted before it is ground, to employ this salt, or even magnesia, observing that both should not be employed in the same dough. (See *Bread*.) It is almost unnecessary to add, that this salt should be kept in well corked bottles.

The next preparation of ammonia is the *Liquor of Ammonia*. This is ordered to be prepared by the London college by dissolving four ounces of the last preparation (the carbonate) in a pint of distilled water, and straining the solution. They have likewise been pleased to give this the new name of the *Solution of the Sesqui-carbonate of Ammonia*. It resembles the old spirit of hartshorn, and is used in cases of syncope, heartburn, and lassitude, in doses of from thirty to sixty drops in cold water.

The Strong Water, or *Liquor of Ammonia*. This is prepared by combining ten ounces of muriate of ammonia (sal ammoniac) with eight ounces of lime, and two pints of water, and distilling fifteen fluid ounces from these ingredients. This is the strong liquor or water of ammonia, while the preceding is the weaker. Either of them may be considered as possessing the same properties of the old spirit of hartshorn, although that spirit still is by some prepared in the old way.

This liquor has a strong peculiar pungent odour, with a hot pungent taste; it is, like the preceding, colourless, transparent, and volatile, and rapidly absorbs carbonic acid from the atmosphere, so as to require to be kept in well corked bottles. Largely diluted, it is used in the same cases as the last, but only in doses of from ten to twenty drops in water or milk, and may be also used as a rubifacient, as in the volatile liniment.

The next preparation for internal use is the *Solution of Acetate of Ammonia*, or *Spirit of Mindererus*, or *Acetated Water of Ammonia*. Take of carbonate or sub-carbonate of ammonia, four ounces and a half (or a sufficient quantity), distilled vinegar four pints, add the carbonate of ammonia to the vinegar until it be saturated. The changes which take place here are sufficiently obvious. It is evident that the quantity of alkaline salt necessary for a certain quantity of distilled vinegar, will depend on the quantity

of ammonia present in the salt, and of acid in the common or distilled vinegar. As this is a useful preparation, and can be made by any one who will attend to the nature of the process, and as we have prescribed it frequently in the course of this work, we shall be more explicit. When the ammonia and vinegar are mixed, an effervescence takes place, just as it does in the case of the common soda powders, in which neither the tartaric acid nor the soda should predominate. If the acid predominates, the draught will have an acid taste; and if, on the contrary, the soda, the water will have a sodaic or alkalinic taste. Without adhering to any particular weight of the carbonate of ammonia, drop into a pint of vinegar gradually, in small quantities, the ammonia, till no effervescence takes place, which will be the point of saturation.

This combination of ammonia with acetic acid is a preparation frequently employed in medicine, and was formerly known by the name of *Spirit of Mindererus*, and we sometimes prescribe it by this old name, and subsequently of *Acetated Water of Ammonia*, and under these names it is still more generally known than by its new appellation. From its action as a diaphoretic, it forms the basis of various febrifuge mixtures, to which it is itself a most useful adjunct. Externally it is a cooling astringent as a lotion to inflamed surfaces, sprains, and fractures. Diluted with two or three parts of rose water, it is a good collyrium; and an injection in the commencement of gonorrhea, in the proportion of one pint to three of the water. Its dose is from one to three spoonfuls, frequently repeated, when intended to act as a diaphoretic; but directions for its use will be found appended to those prescriptions in which it is introduced.

Hartshorn Liniment, or *Liniment of Ammonia*, or *Volatile Liniment*. Strong water, or liquor of ammonia, or spirit of hartshorn, one fluid ounce, olive oil two fluid ounces; shake them together till they are mixed. The alkali here forms a soap with the oil. It acts as an excellent rubifacient in sore throat, when applied on a flannel. When the skin is tender, a third more oil may be added. This is the well known domestic liniment called hartshorn and oil. Either almond, poppy seed, rape seed, or expressed vegetable oils, may be substituted for olive oil. To the foregoing preparations we may append the *Muriate of Ammonia*, or *Sal Ammoniac*, as it used to be, and is yet sometimes called. This substance was originally imported from Egypt. The dung of camels and other animals constituted the chief fuel used in that country, the soot of which is carefully collected, and sal ammoniac prepared from it by a process too tedious for us to describe. The ordinary mode of manufacturing sal ammoniac in Europe is by combining with muriatic acid the ammonia resulting from the igneous decomposition of animal matter in close vessels, and by other means.

The muriate of ammonia is usually sold in the form of a hard striated cake, with an acrid pungent bitterish urinous taste, and inodorous. It requires three parts of water to dissolve one part of the salt, which is only partly soluble. It is seldom used internally, but externally, in solution, to abate the heat and pain of inflammation. To allay headache, it is used in the form of a lotion, composed of the salt, one ounce, water, nine ounces, and alcohol, one ounce. After the head is shaved, rags, several times folded, and wetted with this lotion, are applied. It is likewise applied to indolent tumours, gangrenes, scabs, and chilblains. Some others have extolled the application as an effectual remedy in white swelling of the knee joint, but it has gone out of fashion in these cases. It gives name to all the preceding preparations, and to the ammoniated spirit of hartshorn, or sal-volatile.

Ammonia is, however, a powerful corrosive poison. The strong liquor, or water of ammonia, better known by the name of spirits of hartshorn, when swallowed in an undiluted state, or in too great quantity, produces excoriations of the mouth and fauces, a sensation of burning in the throat, chest, and stomach, followed by vomiting and purging, the ejected matter being mixed with blood. When the dose is large, the immediate feeling is that of strangulation, attended with convulsions and high delirium. If the result be fatal, it very quickly follows.

The *treatment* is the speedy exhibition of vinegar, lemon juice, citric acid, or jelly and jam containing acid, lemonade solutions of tartaric acid, diluted to the strength of strong lemonade. These are to be followed up by milk, whey, or mucilage of gum arabic, or decoction of barley, or marsh mallow roots. Bleeding, and the application of a sinapism to the region of the stomach, is to be had recourse to, if symptoms of inflammation are present.

The *effects* produced, or, in other words, the morbid appearances after death, are marks of strong inflammatory action in the œsophagus and cardiac portion of the stomach.

It may appear strange that poisoning should ever occur, either by the solid carbonate or by the liquid preparations of ammonia, because its extreme volatility and pungency render it so difficult to swallow, if not greatly diluted, in which state it ceases to be a poison, unless taken in very great quantity. Yet a case of poisoning by spirit of hartshorn occurred in Glasgow about thirty years ago, owing to the ignorance and carelessness of an apothecary.

AMMONIACUM, or GUM AMMONIACUM, the product of a plant, the *Heraclium Gummiferum of Welldenow*, growing in Abys-

sinia and Barbary. This substance is imported in dry irregular masses, and tears, from the size of a coriander seed to that of a nutmeg; yellow externally, and whitish within; of a peculiar not ungrateful odour, with a nauseous bitter sweet taste. With hot water it forms a milk or white emulsion, and can be dissolved in vinegar, and partially so in alcohol, ether, and solutions of the alkalies. There are two varieties met with in the shops, the best of which is that we have described above, in tears or drops, and a cheap very inferior kind, in tough lumps, adulterated with various admixtures, from which it is sometimes attempted to be freed, by softening the mass, and straining. This kind should, however, never be used internally, but for plasters, and even for that purpose it must be purified from gritty substances. Ammoniacum is a valuable old medicine, too much neglected in modern practice. The ammoniacal mixture, or the milk or emulsion, combined with vinegar, or tincture of squills and other auxiliaries, is an excellent cough medicine for the aged, and one of the most valuable expectorants, and in this form, as well as that of pills, combined with squills, is used in cases of asthma, chronic cough, and visceral obstructions, in substance, in doses of from ten to thirty grains in pills. It is likewise externally applied as a resolvent to scrofulous and other tumours, in the form of a plaster, sometimes with the addition of mercury, as in the formula of the London pharmacopeia.

The following are the official formulæ of ammoniacum:

Mixture, Milk, or *Emulsion of Ammoniacum.*

Picked, or best Ammoniacum, two drams.
Water, half a pint.
Rub the Ammoniacum, adding the water gradually, until they be perfectly mixed, and strain.

This is sometimes called the lac ammoniacum, or, from its white colour, the milk of ammoniacum. It is used as the basis of other and more active medicines, already referred to in the preceding description. As we shall have frequent occasion to prescribe it, we annex our own formula for the

Compound Ammoniacum Mixture.

The above simple mixture of Ammoniacum, half a pint.
Simple Syrup, or rather Syrup of Colt's foot, four ounces.
Tincture of Squills, four drams.
Tincture of Opium,
Tincture of Henbane, each two drams.
Sweet Spirits of Nitre, half an ounce.
Cinnamon Water, two ounces and a half.
Mix.

Two ounces of this mixture may be taken half an hour before going to bed, and the same dose in the morning, half an hour, or even an hour, before rising, if the cough is troublesome. It will ease the hard dry cough, and facilitate expectoration, while it exerts a favourable influence on the kidneys and urinary organs of the aged, and is perhaps one of the very best cough mixtures in their case that can be employed.

The *Plaster of Ammoniacum*, and *Ammoniacum Plaster with Mercury.* It is better to purchase these plasters than in domestic practice to attempt their preparation. They are useful applications to white swelling, induretted glands, and indolent tumours, when spread on leather, or cloth, and applied to the spot.

Ammoniacum likewise enters into the composition of the squill pill. See *Squills.*

AMNIOS, or AMNION, and the liquor *Amnii.* The membranous ovum or bag in which the fœtus or child is inclosed while in the womb, consists of three membranes, an outer, or filamentous, called *decidua;* a middle one, which in the embryo is shaggy, named the *chorion;* and an inner one, called the *amnion.* The use of this bag is to include what anatomists have called the *liquor amnii*, to prevent its flowing into the uterus or womb, and, at the commencement of labour, to assist in dilating the os uteri, or mouth of the womb, thus evincing another wise provision of nature for moderating the sufferings of the mother. This liquor amnii, or waters, as it is sometimes called by mid-wives, is a lymphatic gelatinous liquid, like the turbid serum of milk. Its use is to defend the child from the pressure of the womb; and as we have already stated, more mildly to dilate the orifice of that organ in labour, to lubricate the vagina, and some have even supposed, to give nourishmen to the fœtus.

AMPUTATION, in surgery, means the operation for removing a diseased or wounded limb, or member of the body, when every hope of recovery is lost, or the life of the patient endangered by allowing it to remain any longer in connection with the sound parts to which it is attached; the term, however, is usually confined to the removal of a limb, as the arm, or leg, or any part of these members, but when a tumour, or excrescence, is removed, it is said to be excised or dissected out.

The operation consists in dividing the soft parts in such a manner, that a sufficiency of flesh and skin be left to cover the bone deeply and completely. The soft parts being powerfully retracted, the bone is then to be sawn off as short as possible. The bleeding vessels are next to be secured by ligatures, and the operation is completed by bringing the divided parts into contact, and retaining them so by means of stitches or adhesive plasters. But as it cannot be expected that in a work like the present we should enter into details of operations requiring the united skill and dexterity of the surgeon and anatomist, we must refer those who are curious in these matters to treatises on surgery. The means adopted for restraining bleeding, during this and other operations, will be found fully described under the article *Wounds.*

ANALYSIS is a term employed by chemists to designate the operation or operations by which

are discovered the constituent substances or principles of any given organized or unorganized body that may be submitted for chemical analysis.

The processes and experiments which are employed in chemical analysis, are extremely numerous; there is one system pursued for vegetables, and others for the different parts of the same vegetable, and the same holds true as to animal substances, minerals and earths, and also to airs and waters. Numerous and complicated however, as are the methods of analyzing, they may perhaps be reduced to two, in a thorough knowledge of which the whole science of chemistry may be said to consist. The first is *analysis*, strictly so called, or decomposition; the second *synthesis*, or composition. In analysis, the substances of which bodies are composed are separated from each other. Thus, if we reduce Ethiops mineral, which is composed of sulphur and mercury, and exhibit these two bodies in a separate state, we say we decompose or analyse Ethiops mineral. But if several bodies be mixed together, and a new substance be produced, the process is then termed chemical composition or synthesis. Thus, if by fusion and sublimation, we combine mercury with sulphur, or by any other means, we unite them so as to form the Ethiops mineral, the operation is termed chemical composition, or composition by synthesis.

Indeed such has been the rapid march of chemical science even within the last thirty years, that were a chemist of that day to rise from the dead, he would scarcely believe it possible, and yet the science is only in its infancy. The use of the blowpipe and other improvements in the analysis of soils and mineral waters, but especially the discovery of the peculiar alkaline principles of vegetables, has given a new face to our Materia Medica, and furnished the physician with many valuable medicines to which our forefathers were strangers. The discovery of the active principles of Peruvian bark, quinine, and of opium, morphia, are discoveries worthy a place in the history of human inventions. Those who wish to prosecute this delightful study, have now easy access to books and able teachers, and they can procure at small expense chemical tests and apparatus, &c., to effect the analytical processes.

ANATOMY. The Greek word from which our English term anatomy is derived, literally means dissection or separation of parts, and is used to denote the artificial separation of the component parts of bodies, in order to obtain an exact knowledge of their situation, shape, and structure. Human anatomy, which thus lays bare to us, as it were, the various important parts composing the human body, and their relative situations to each other, is evidently the only true foundation of any rational theory or practice of medicine, whilst the surgeon cannot move one step in any operation without the most exact knowledge of the anatomy of the parts on which he is about to operate. Accordingly we find, that as anatomy has been cultivated or neglected, so medicine and surgery have flourished or declined. Until very lately, even in this country, the acquisition of a sufficient knowledge of anatomy was attended with considerable difficulty, owing to the prejudice existing in the public mind regarding the mutilation of the dead; but the anatomy Act, passed some years since, whilst it effectually prevents the old system of raising the dead, by the appointing inspectors of anatomical rooms, and requiring certificates as to where the bodies have been obtained; removing, also, one cause of odium attached to dissection, by prohibiting, in future, the dissection of the bodies of criminals, has done much to facilitate the study of this important branch of medical science, by allowing the bodies of persons dying unclaimed, to be given up for anatomical purposes, commanding, however, that all such bodies be subsequently interred within a certain time from their delivery.

It would be foreign to the intention of the present work to give, under this head, a regular anatomical description of the human body, as this would both exceed our limits, and lead to much repetition, as the most important parts will be found described throughout the work, in the articles, *Skeleton*, *Muscles*, *Blood-vessels*, *Nerves*, *Brain*, *Abdomen*, *Chest*, &c.

ANATOMY, Comparative. By comparative anatomy is meant the study of the anatomical structure in the lower animals, as compared with that of the human body; but although in itself a most interesting branch of science, it is a subject foreign to a work like the present. We, however, take this opportunity of recommending the study, as being well calculated to cultivate the intellectual faculties, and awaken a taste for the study of natural history, and other branches of science intimately connected with the preservation of health, and the cure and alleviation of accidents or diseases.

ANCHOVIES, Essence of. This favourite fish sauce is prepared from the anchovy, a small fish of the herring genus, in various ways, and is perhaps adulterated in as many more; but on the use, abuse, preparation, and adulteration, of this and some other sauces, information will be found under the heads *Condiments*, *Sauces*, &c.

ANCHYLOSIS. This term is used to denote stiffness or immobility of a joint, an affection which will be found frequently alluded to in our various articles on diseases of the joints, as it is one of the usual results of accident or disease in these parts. Anchylosis has been divided into *true*, or *false*, or *complete*, and *incomplete*. *True anchylosis*, or stiffness or immobility of the joint, is said to exist when the articular cartilages are destroyed, and the heads of the bones connected or consolidated together by osseous or bony matter. *False anchylosis* is where the process falls

short of ossification, the stiffness and immobility depending not on osseous union of the articular surfaces, but either upon adhesions of the synovial membrane, or upon a thickening of the parts about the joint. When the cartilages of a joint are destroyed by ulceration, and the surfaces of bone exposed, anchylosis, or a bony union, is frequently the most favourable termination that can take place. Anchylosis is sometimes, then, a desirable and salutary event, and the only mode by which a dangerous disease of a joint can be brought to a conclusion. When, however, it follows a fracture that has occurred near a joint, it is to be considered an event which it would have been desirable to prevent; but under certain conditions of diseased joints, an anchylosis is one of the best things that can happen; and in this we are borne out by no less an authority than Professor S. Cooper, of the London University, and other eminent surgeons. Thus in scrofulous caries of the spine, anchylosis is a most favourable result, because as soon as the bony union, or complete anchylosis, is formed, the morbid or diseased process is ended, and it is the completion of the cure. In hip joint disease, white swelling, and scrofulous diseases of the spine, anchylosis is often to be regarded as a favourable issue.

Anchylosis, however, in fractures near the joints, should always be prevented if possible; and for this purpose, passive motion of the joint ought to be had recourse to before it is too late. The first thing for preventing anchylosis, after fractures near a joint, is to keep down the inflammation of the part by a strict antiphlogistic treatment; bleeding from the arm, and with leeches to the part; purging, and cold applications, such as a solution of acetate or sugar of lead; and afterwards, when the inflammation is gone, and the fracture advanced to a certain stage, passive motion is to be *very cautiously employed*: but before proceeding, a broad leather belt, with two or three buckles, should be placed around the fractured part, so as to prevent any disturbance of the newly formed union; and this motion should be employed every day; but the patient must never exert the muscles; this must be entirely left to the attendant. This passive motion may, in some cases, be begun in three weeks after a fracture; but in other cases, it will not be safe earlier than four weeks. We know a case of a gentleman whose shoulder joint has become partly anchylosed by want of attention to these precautions, and he, too, was under the care of an anatomical and surgical teacher.

In cases of *incomplete anchylosis*, where the stiffness only arises from thickening of the parts, much relief may be derived from the application of steam, by placing the stiff joint over the steam of boiling water, at such a distance as to prevent scalding, then drying the part, and rubbing it with neat's foot or cod liver oil, or the compound saponaceous liniment, or even goose fat. By a perseverance in this plan for twelve months, steaming and rubbing in some of the above liniments, night and morning, the free use of an ankle joint that had been incompletely anchylosed for eighteen months, was restored. Cold applications, such as holding the part below a rush of water, or pouring water from a tea-kettle, have likewise been employed; and when the patient has arrived at the meridian of life, this may be used twice a-day, and the part dried, and some of the above liniments rubbed on. The rushing of the water should, however, not be used longer than three or four minutes, as no good will be effected unless a glow of heat is felt on the part after it is dried.

Cases are on record in which the whole skeleton has been anchylosed; and in the transactions of the Academy of Sciences of France, the case of a child is detailed who was afflicted with a universal anchylosis, or in other words, the ends of the bones forming the joints, were united by ossification. Though rare, this disease has occurred in the lower jaw; and in one case, the patient, a girl, was not more than eight or nine years of age when anchylosis formed, in consequence of a blow on the side of the face. She lived to be an old woman, and contrived to masticate or chew her food with tolerable facility, by pressing the food against the alveolary process with her tongue; her speech, too, was perfect, and she passed through life in tolerably comfortable circumstances; and this, as well as many other cases, illustrative of the wonderful resources of nature in providing substitutes, aids, and auxiliaries, when any part of the fabric is destroyed or deformed by disease or accident, will not, we hope, escape the notice of the intelligent and reflecting reader. The cases requiring amputation, and other particulars respecting anchylosis, will be found under the articles *Fractures, Luxations, Scrofula, Rickets, White Swelling*, &c. &c.

ANDERSON'S PILLS. These pills are made by dissolving the aloes in spirit of wine, and then allowing it to evaporate until the mass is of a proper consistence. A few drops of anise oil may be added to prevent griping; one or two three-grain pills are the dose.

ANEURISM, may be defined a pulsating tumour communicating with the canal of an artery. Aneurisms are divided into two great species: viz. true and false. True aneurism has been described as a uniform dilatation of all the three coats of an artery; but this is rarely the case, and the term is now generally used to denote aneurism arising from disease of the coats of an artery, in contradistinction to those following destruction of the coats from external injury, such as wounds in bleeding, &c., which have been termed spurious or false aneurisms.

True aneurism generally commences with

earthy or lardy deposit between the internal and middle coats of the vessel; inflammation is set up around this, ulceration of the middle and internal coats takes place, and the blood is effused at that point, distending the cellular coat, which thus forms the bag or sac of the tumour; uneasiness and throbbing is felt in some particular situation, and on examination a small pulsating tumour is discovered. In the first stage this tumour is easily made to disappear by pressure, but returns immediately on the pressure being removed, and its pulsation is equal at every point; but as it enlarges the blood becomes coagulated, the tumour consequently becomes incompressible, and the pulsation less distinct at some points than others. For some time it is unattended with pain or discoloration of the skin, but if allowed to proceed, its pressure gradually causes absorption of the neighbouring parts, and as it advances towards the surface, the superimposed integuments assume a dark purple colour, and together with the aneurismal sac eventually give way, sometimes destroying the patient instantly from the great effusion of blood, but more generally from repeated and uncontrollable small bleedings.

False aneurism is caused, as already stated, by division of all the coats of the vessel from external injury, and is generally the result of wounds with sharp pointed instruments. The blood in this case is effused into the cellular tissue, which may be condensed around it so as to form a sac for it, and it is then termed encysted false aneurism; or it may be diffused through the cells of that tissue, forming an irregular flattened swelling; this is called diffuse false aneurism. There are other varieties of false aneurisms called varicose aneurism, and aneurismal varix, but these it would be difficult to explain to the general reader, and at the same time quite inconsistent with the nature of the present work.

Aneurisms occur most frequently in those who use violent muscular exertions, in the aged and others, as the rheumatic and gouty, in whom a predisposition to disease of the vessels generally exists, and in those who, from excess of any kind, have debilitated their constitutions, thereby inducing disease of the tunics of the vessels. The treatment of aneurism is either general or local, the former being chiefly applicable to internal aneurisms, which are beyond the reach of surgical interference. It consists of repeated bleedings, perfect rest, low diet, gentle laxatives, and the exhibition of those medicines which, by diminishing the heart's action, depress the general circulation, thereby favouring the formation of a coagulum, which may gradually fill up the calibre of the diseased vessel, the circulation then being carried on by the collateral channels. Every thing likely to excite or agitate the patient should be carefully avoided. Although, by the above treatment, we may often alleviate symptoms, and retard the fatal termination of the disease, in those cases where local treatment cannot be employed, still we can seldom be warranted in expecting a perfect cure from its adoption. The local or surgical treatment of this disease, once so formidable and unsuccessful, forms, in the hands of a dexterous surgeon, one of the simplest, but at the same time one of the most brilliant achievements of modern surgery. It consists of applying a ligature of silk or linen thread on the course of the vessel on which the aneurism is situated; this ligature, on being tightened, divides the internal and middle coats, constricting the outer or cellular coat, the cut edges of the two inner coats are thus brought into close contact, and the canal of the vessel rendered quite impervious. At the deligated point a clot is thus formed, lymph is effused from the cut edges of the inner coats glueing them together, and finally the clot adheres by lymph to the sides of the vessel, and becomes organized, obstructing the passage of blood through its canal up to the nearest collateral branch. The blood is thus forced into the collateral branches, which gradually enlarge, and thus carry on the circulation, whilst the flow of blood through the aneurism being thus diminished, allows the coagulum to form, obliterating its cavity, and the tumour is finally removed by the absorbents. The local treatment differs, however, according as it is to be applied in a case of true or false aneurism. In the former we may naturally expect the vessel to be diseased for some distance above the tumour. It would evidently be improper to apply a ligature in its immediate vicinity, as it would ulcerate before the phenomena, above described, had time to take place, and therefore the ligature is applied on the vessel at a considerable distance above; or, in other words, where we expect its coats to be sound; for example, in aneurism of the popleteal artery in the ham, which is a continuation of the superficial femoral downwards, (see Plate of the arteries of the thigh and leg), the ligature is applied to the upper part of the superficial femoral, and not immediately above or below the tumour, as used to be the practice. But in false aneurism the case is different, inasmuch as the coats of the vessel are not diseased at the wounded point, and a ligature applied above and below the opening is the best method of preventing the secondary bleeding, which might otherwise occur from the lower end of the vessel by the collateral circulation, were only one ligature applied. Whilst on this subject, there is one method practised for the cure of aneurism, and more particularly in cases of wounded arteries, which deserves to be attended to by the domestic practitioner, as these accidents sometimes occur when no professional aid is at hand, as in opening a vein, and from other accidents. This is the treatment by methodical bandaging,

which, when promptly and properly applied, proves successful.

Suppose then, that the artery at the bend of the arm has been accidentally wounded in opening a vein, (and that it is wounded will be known by the florid hue and impetuous flow of the blood, which is projected in jerks, with a whizzing sound, unlike the dark continuous stream from a vein), in such a case, the thumb of one hand is to be placed instantly and firmly on the orifice, whilst with the other hand pressure is made in the course of the artery of the arm compressing it against the bone, (see Plate of arteries of arm); the bleeding being thus arrested, another person should apply a roller from the fingers upwards, bandaging each finger separately to prevent swelling from the compression which is required above; and when the bandage reaches the bend of the arm, a graduated compress is to be applied over the wound, and firmly retained by the turns of the bandage; then two or three narrow and long folds of lint or linen, with a similar slip of thin sheet lead over all, are to be placed over the course of the artery in the upper arm, and firmly bandaged up to the arm pit. By this method, when promptly applied, and before any blood has escaped into the cellular tissue, a perfect cure will often be effected; and at all events, by it the safety of the patient is secured until seen by his medical attendant. In bleeding from wounds in the thigh, the tourniquet, or some substitute for it, must be used. But as these will be spoken of at length under the article *Wounds*, we refrain from describing them under this article, in which we have already, perhaps, exceeded the intentions of the present work.

ANEURISM, BY ANASTOMOSIS. This is a tumour formed by a congeries of arteries and veins, and has in general a red or livid appearance. It is generally movable, and of a much redder colour in childhood than in the adult or aged. The disease is likewise known by the name of *Nævus Maternus*, or *Mother's Marks*, *Blood-sponge*, and *Strawberry* or *Raspberry Tumour*. A more particular account of this kind of tumour, and the mode of removal, would be useless in a work like the present.

ANGINA PECTORIS. An acute constrictory pain at the lower part of the sternum, or breast bone, inclining to the left side, and extending to the arm of the same side, attended with great anxiety, and the same constrictory pain in the region of the heart, difficulty of breathing, tendency to fainting, and a feeling of approaching dissolution, and the latter sensation more acute and severe on the patient walking up a hill or rising ground, feeling incapable of proceeding without aid, are symptoms characteristic of this disease. This affection sometimes comes on after a meal, or subsequent to a longer than usual abstinence, and in course of time the paroxysms recur in the night, after the first sleep. Mental anxiety, derangement of the digestive organs, flatulence and irritations, a torpid state of the bowels, and occasional spasms about the chest, are the most ordinary forerunners of an attack of this disease. The sense of constriction and suffocation, however, is different from that which takes place in asthma, being rather referred to the heart than the lungs. The pulse is not unfrequently irregular and intermitting during the fit, but in other cases there is no perceptible alteration.

There is, perhaps, no disease, respecting the *causes* of which physicians have been more divided in opinion. The fact is, that it is only of late, or within a period of little more than fifty years, that this affection became recognised as a distinct disease, and the variety of appearances presented by the *post mortem* examinations of the bodies of those who have been carried off by the complaint, may, in a great measure, account for the difference of opinion that exists on the subject. Facts, however, go to prove, that the middle-aged, or those who are on the after-side of forty-five years, and who are of a robust and corpulent habit, are most liable to the disease, although some have found it equally common in persons of a spare habit. There can be no doubt that the gouty, rheumatic, indolent, sedentary, studious, and especially those who have been long subjected to great mental anxiety, are the most frequent subjects of angina, while there are few instances in which females have ever been subjected to its influence.

Walking, especially at a quick pace, against the wind, up a hill, or rapidly ascending stairs, after a full meal, or speaking or reading aloud in the same circumstances, are all powerful excitants of this affection.

Diagnosis. Asthma is more readily to be mistaken for this disease than any other, but a careful perusal of that article (*Asthma*) will enable the most inexperienced to distinguish between them. In asthma, the constrictory pain in the sternum, extending to the arm, already described as symptomatic of angina pectoris, is never felt; but, on the contrary, a heavy dyspnæa, or difficulty of breathing, wheezing, and cough, which never, or very rarely indeed, ever accompanies the paroxysms of this disease.

Prognosis. When the disease has been preceded by other diseases of a violent kind, or when from improper treatment it has been allowed to remain unrestrained, and there is reason to fear that organic lesions exist, a very unfavourable opinion may be formed of the result. In those, however, of an otherwise sound constitution, and whose health has not been impaired by intemperance, recovery under judicious treatment may be anticipated.

Treatment. Those who are subject to this and indeed to every other affection of the heart, should studiously avoid violent exercises, mental emotion, especially anger and sudden gusts of passion, long fasting, and what is equally injurious, too full meals, exposure of the extremities to cold, and a sudden transition from a heated to a cold atmosphere, especially after indulging in spirituous, vinous, or heating liquids. Indeed warm punch, or toddy, are liquors that should never be swallowed in the intervals of the paroxysms of this disease. The patient should become a regular teetotaler, and remain so, or use no liquors stronger than small, spruce, treacle, or ginger beer.

As to medical treatment, especially during the fit, if the patient is of a full plethoric habit, it may be necessary to draw a large quantity of blood. A large sinapism should be applied over the whole chest, and the bowels opened by a warm carminative purgative, such as six drams of the compound tincture of senna, in a wine glass of senna tea, while at the same time an enema of milk of assafetida, combined with half an ounce of the compound tincture of camphor, should be administered. In this case four ounces of the enema will suffice, as it should remain in the bowels till expelled by the purgatives.

In other cases where the pulse is weak, the countenance pale, and the patient of a more delicate constitution, or, it may be, the victim of intemperance, hard study, or long continued mental emotion; or if the fit is attended with a tendency to syncope or fainting, blood-letting should be avoided, but the other medical treatment recommended above, may be employed. The use of anti-spasmodics, especially valerian in the form of a mixture of half a pint of the infusion and two ounces of the tincture, may be given in doses of a fourth part daily.

Frictions to the back and spine, as far down as the sternum or breast bone reaches in the front, with the compound turpentine liniment, will be found a useful auxiliary to the other means already recommended. Opiates are frequently useful in small doses, and the ammoniated tincture of opium is the best form in which they can be administered.

In the intervals of the fit the patient will do well to avoid those exciting causes before enumerated, especially running, leaping, or walking at a very quick pace. The same caution applies to violent exercise on horseback. Sailing, if not accompanied by very violent sea-sickness, stormy weather, or exposure to cold and wet, will in many cases be found highly beneficial.

Although we have entered thus fully on the symptoms and treatment of this disease, it is one that should never be entrusted to domestic management, unless circumstances prevent the employment of an experienced physician.

ANGUSTURA BARK, or *Cusparіæ Cortex*, or the *Bonplandiæ Trifoliata Cortex.* The tree which furnishes this bark is a native of South America. The bark is imported in thin pieces, having an externally gray wrinkled appearance, internally a yellowish colour, and a short resinous fracture, with a peculiar odour, and a bitter taste, being slightly aromatic.

It possesses aromatic, stimulant, and tonic properties, and is prescribed in dyspepsia, attended with flatulence and acidity, and likewise in chronic diarrhea and dysentery, in doses of from five grains to a scruple, in the form of powder. The colleges likewise order an infusion and tincture.

ANIMAL. Those living bodies are denominated animals which appear to be capable of sensation, ideas, or of feeling.

ANIMAL ECONOMY. This term is sometimes employed to designate the various structures and functions of man and animals; and at other times, those laws and regulations by which the various functions of the body are governed and regulated. See *Man, Physiology, Respiration,* &c.

ANIMATION, Suspended. See *Accidents, Asphyxia, Drowning, Charcoal, Suffocation.*

ANISE SEED, *Anisum Vulgare*, or *the Pimpinella Anisi of Linnæus.* The seeds of this plant have a warm, sweetish, grateful taste, with an aromatic odour. They are carminative and aromatic, and peculiarly adapted to the case of children who are subject to flatulent colic, with pain in the bowels. Anise seeds are very effectual for relieving these troublesome affections in infants, as they act in a small dose, and are not in any hazard of inducing bad habits, or stimulating too much, as many other medicines prescribed for relieving children are almost certain to do, such as syrup of poppies, laudanum, Dalby's carminative, Godfrey's cordial, and strong punch. The size of a pinch of snuff, or four or five grains of the finely powdered anise seed, or even as much as can be lifted on a silver fourpence or sixpence piece, may be given the child when it cries much, in a tea spoonfull of breast or cow's milk, and a warm flannel applied to the abdomen. Or ten drops of the essential oil of anise seed may be dropped on two drams of refined sugar, and the sugar and oil intimately incorporated by rubbing them into a very fine powder, in a stone mortar, gradually adding, while the rubbing is continued, two drams of calcined magnesia. This powder, which may be named or labelled *Sugar of Anise*, should be kept in a close-corked vial, and as much given the child as can be lifted on a sixpence, when it cries or complains of flatulence or pain in the bowels. This, too, may be given in twice the quantity when the child is costive.

Anise seeds have long been employed in the same form as tobacco by smoking, in various

affections of the chest, as chronic catarrh, cough, asthma, and wheezing. We have frequently ordered them in conjunction with stramonium, and in other cases, with colt's foot leaves or flowers, and also singly, with great benefit, especially to the aged, and those not previously habituated to the use of tobacco. They tend to promote expectoration, and relieve the bronchial tubes of mucus, and they have the advantage of being both a cheap and a safe medicine.

ANODYNES. Medicines which ease pain and procure sleep are called anodynes. The older writers on the Materia Medica used to divide anodynes into three classes; first, paregorics, or such as assuage pain; hypnotics, or such as relieve by procuring sleep; and narcotics, or such as ease the patient by inducing stupefaction, and this latter class generally first produce excitement succeeded by depression, and usually followed by sleep, although every narcotic is not possessed of an anodyne power.

Anodynes may be either introduced into the body by friction on the skin, as in the case of the anodyne liniment, by the application of powdered opium or morphine, to a blistered surface after the skin has been removed, or by injection.

ANODYNE BALSAM. This preparation, which is an excellent soothing and discutient application to sprains, bruises, and stiff-joints, is an easily prepared domestic medicine, made by mixing two parts of the compound soap liniment, and one part of the tincture of opium. Or where a greater anodyne effect is required, equal parts of these two ingredients. The swelled or pained part should be well washed with warm water, and then dried, and the vial containing the liniment dipped for two or three minutes in hot water, so as to render the balsam of a blood heat, when it is to be well rubbed on by a soft hand till the surface become dry. The application may be made twice or thrice a-day, and the quantity used regulated by the severity of the injury, or the necessity of the case.

ANOMALY. The deviation from a rule and that which deviates, is called anomalous, and hence in medicine when any uncommon symptom or symptoms occur in a disease, they are said to be anomalous symptoms, and if several of these symptoms are present, the disease is called an anomalous disease.

ANTACIDS. See *Absorbent Medicines.*

ANTHELMINTICS, are medicines which procure the evacuation of either dead or living worms from the stomach or intestinal canal. Many of them act mechanically, dislodging the worms by the sharpness or roughness of their particles, as iron or tin filings, or as cowhage, by its sharp spiculæ, pricking the worms to death; others by their cathartic or purgative operation, especially those that act more powerfully on the mucuous membrane of the intestines, as calomel, gamboge, scammony, or even a strong infusion of senna. Another class appear to act merely by their possessing the property of extreme bitterness, and by this quality are supposed to be noxious to these vermin. They perhaps act as tonics and stomachics, and thereby improve the tone of the digestive organs, and in this way prevent the generation of worms, as well as remove those already generated.

There is, however, another division of anthelmintics, which appear to act as a direct poison to the worms, and oil of turpentine is perhaps the most effectual of this class, and in cases of tape-worm is perhaps the best remedy we can employ. After, however, every unpleasant symptom, indicating the presence of tape-worm, is removed, by the use of the oil, and the patient appears quite well, in a few months there again appear the symptoms of its existence, and positive proof thereof, by small portions being voided. In such cases, or indeed in every case of tape-worm, after the turpentine has been employed, and no more portions are expelled, the patient should be put under a course of tonic anthelmintics, viz., the precipitated carbonate, or the dried sulphate of iron, combined with bitters, in the form of pills. Two drams of either of these preparations of iron, and half a dram of each of the powders of Columba and ginger, should be formed into a mass with as much soft extract of camomile, gentian, or wormwood, as may make it in a fit state to be formed into pills of an ordinary size; one of which is to be taken three times a-day, gradually increasing the dose till eighteen are taken in the twenty-four hours, or six as a dose. Three or four of the simple aloetic, or compound rhubarb pill, may likewise be taken every third night, to keep the bowels in a regular state, if the iron pills fail to do so. This plan should be persevered in for some weeks, and gradually relinquished by lessening the dose one pill daily. There is likewise another tonic anthelmintic which may be used as a preventative after the expulsion of tape-worm, viz., the muriated tincture of iron holding in solution the muriate of mercury. This truly useful medicine may be given in doses of six drops three times a-day, in a glass of water, gradually increasing the dose to thirty drops, or ninety, in the course of a day. The dose may be increased at the rate of one drop each time, or three drops daily. A mild laxative, such as a wine glass of the infusion of senna, with Epsom salts, may be taken every second or third night.

After the use of anthelmintics, it is the general practice, and a good one, to administer purgatives.

ANTIMONY. This mineral substance has been long used in medicine in various combinations, and is one of the most powerful agents the physician can employ. In its pure metallic form antimony is of a white colour, with a shade

of gray, and a lustre which is not easily tarnished by atmospheric exposure. Of late years the term antimony has been appropriated to the metal itself, although the name of 'regulus of antimony' was, previous to the forming of the new nomenclature, employed to distinguish the metal; that term is now dropped, and the word antimony used in commerce to denote a metallic ore, consisting of sulphur combined with the metal which is properly antimony, but sometimes this sulphurate is termed crude antimony, to distinguish it from the pure metal or regulus, as it was formerly called.

The preparations of antimony:—Sulphuret of Antimony is an insoluble black or bluish gray powder, containing in one hundred parts about seventy-four of antimony and twenty-six of sulphur. Its operation is slightly alterative and diaphoretic, and it is used in chronic rheumatism, cutaneous diseases, and scrofula, in doses of from ten grains to half a dram, and sometimes more, the stomach and bowels having been previously evacuated. It is seldom employed in the form of a black sulphuret but for the purpose of forming the other preparations of the metal, such as the prepared oxide of antimony, the precipitated sulphuret, and the antimonial powder.

The next preparation in order, denominated the Precipitated Sulphuret of Antimony, is an orange coloured powder, insoluble, with a styptic metallic taste, and is almost the same substance that is denominated Kermes' Mineral in former pharmacopeias, and the oxysulphuret of antimony in the new London (1836) pharmacopeia. It enters into the composition of Plummer's, or the compound calomel pill (see *Plummer's pill*), a favourite remedy in cutaneous diseases. This precipitated sulphuret likewise operates as an alterative, cathartic, diaphoretic or emetic, according to the extent of the dose. It is, however, chiefly used as a diaphoretic in combination with other medicines of the same class, in cases of chronic rheumatism, and in combination with calomel, in obstinate diseases of the skin, and in those cases it is frequently very useful in doses of from one to four or five grains twice or thrice a-day, in the form of pills.

The third, and indeed one that might supersede all the other preparations of this metal, is Tartarised Antimony, or Emetic Tartar, or, as it is called by the London College, Potassio-Tartrate of Antimony. Although tartarised antimony forms into crystals, it is seldom or never sold in the shops in a crystallised form, but in that of a white powder composed of tartrate of antimony and tartrate of potash, having a metallic styptic taste; and if pure, a fluid ounce of distilled water at 60° should dissolve twenty-five grains.

Its operation on the animal economy is various, according to the dose and form in which it is administered. In small doses, administered at intervals of two or more hours, it is alterative, expectorant, and diaphoretic, and in larger doses at shorter intervals, is emetic, and sometimes cathartic; and when mixed with lard or ointment, in the proportion of one dram to an ounce of lard or spermaceti ointment, is a rubefacient, producing often a large crop of pustules resembling small pox. This preparation is called Tartar Emetic Ointment. The diseases in which emetic tartar is most usually employed are, fever in the first stage, as an emetic to clear the stomach, and it frequently in such cases answers a two-fold purpose, and likewise freely evacuates the contents of the bowels. Owing to its secondary operation, and its tendency to induce debility, it should not be employed as an emetic in the advanced stages of typhus. After bleeding in inflammation of the lungs it may be beneficially given in small doses, two grains dissolved in one ounce of distilled water, and given in doses of forty drops, or half a tea-spoonful in a wine glass of barley water every two hours; and in cases of obstinate cutaneous irruptions, where it may be necessary to keep up a long continued slight perspiration on the surface of the skin, the same solution of two grains to the ounce may be given in doses of twenty drops, thrice a day. Externally, in the form of ointment, according to the state of the skin and age of the patient, the strength of the ointment varying from one dram, gradually up to three drams to an ounce of hog's lard. The emetic tartar and lard only requiring to be intimately mixed together on a plate or slab with a spatula or table knife. This formula, in its greatest degree of strength, has been usefully employed in white swellings, stiffness and enlargement of the joints, the size of a small horse-bean, or even of a walnut, according to circumstances, being rubbed over the joint daily, or even twice a day, till a crop of pustules appear, continuing the rubbing on those parts where no pustules have been produced. The ointment, in the proportion of half a dram to an ounce of lard, has been used with great advantage in hooping cough, a portion being rubbed on the chest till the effect is produced; it should not, however, be used even of this strength on a child below nine months. The numerous cases, however, in which it is em ployed will be found under their respective heads. Suffice it here to remark, that when given as an emetic, the tartarised antimony should always be given in divided doses, in solution, either in common, soft, distilled, or rain water, collected at a distance from any building, from one grain to four or five dissolved in four ounces of water, and given in doses of a table spoonful every twelve or fifteen minutes till it operates. Decoctions of bitter and astringent plants, and even tea, are improper as drinks, as they would check the operation, warm water alone being the most effectual means of promoting the vomiting.

There is only another preparation of this powerful medicine, which we deem it necessary to mention, viz., the Emetic Tartar, or Antimonial Wine. The London College order this to be made by dissolving two scruples of emetic tartar in a pint of sherry wine, which is two grains to every fluid ounce, the same proportion as the watery solution above described. But from the very uncertain state as to strength and other circumstances in which sherry, and indeed other wines are met with, the Edinburgh College order the emetic tartar to be dissolved in twelve ounces of warm distilled water, and when the powder is dissolved to add four ounces of rectified spirit of wine to the solution. This addition of the spirit confers no new powers on the solution but that of preserving it from spoiling for a greater length of time, and in this state it is always ready for use, and forms an excellent family medicine. From three drams to an ounce of this preparation will produce full vomiting if given in doses of one or two tea spoonfuls in a wine glass of water every six or eight minutes, and it also acts as a diaphoretic in the same doses and manner as the simple watery solution is ordered. Those who purchase this preparation in England may therefore procure it of a different colour from what is sold in Scotland, but they should always inquire the proportion of the tartrate of antimony to each ounce of the fluid. It is so easily prepared, however, that it is best for families to procure the emetic tartar and prepare the solution at home, either in wine, water, or spirits and water; if for keeping, the last is the preferable form. In prescriptions, those three forms are to be medicinally considered as synonymous.

The only remaining preparation in general use is the Antimonial Powder, intended as a substitute for the empirical medicine sold under the name of *James's Powder*, which, however, is much more certain in its effects. They are both preparations of great value, and are universally employed in the treatment of febrile diseases.

Tartarised antimony or tartar emetic, and indeed all the other preparations of antimony, when taken in too large doses, act as *corrosive metallic poisons*, especially the tartarised antimony.

The *symptoms* which follow an over-dose of this medicine are, nausea, severe vomiting, heartburn, and severe burning pain at the stomach, a colical twisting of the bowels, with severe and frequent purging, the pulse is frequent, hard and small, the respiration is difficult, and there is syncope or fainting, followed by vertigo or dizziness, and insensibility to external stimulants; the lower limbs are severely cramped, a general prostration of strength and death follows in the train. These rapid and severe symptoms tell us that the most speedy and active treatment should be pursued. The poison should be freely diluted with tepid fluids, to evacuate the whole, or large draughts of the decoction of yellow cinchona bark, or yellow Peruvian bark, should be freely administered, which may not only, from their bulk, evacuate the contents of the stomach, but likewise neutralise their poisonous quality. Strong black tea may be used when the bark cannot be procured; and water impregnated with sulphurated hydrogen, which will speedily convert the emetic tartar into a harmless salt. Although the yellow Peruvian bark is to be preferred, the other barks may be used, and even a decoction of oak bark, and plentiful dilution with tea, will effect great good. An enema of an ounce of starch, linseed tea, or melted fresh butter, with a large tea spoonful of laudanum, may be administered as soon as the poison has been sufficiently diluted and evacuated, and a mustard cataplasm, the size of our page, applied to the pit of the stomach, will tend to allay the vomiting. If the laudanum enema has been retained, and the sufferer obtain any relief in two hours after, another enema, consisting of half a pint of beef tea and one ounce of castor oil, should be given and, if possible, retained for some time.

If the poison has been in solution, and taken by mistake, as we once knew a half pint and more of antimonial wine to be quickly swallowed, or in the form of a solution in water and rectified spirits, there will be little difficulty in finding a test, as the tincture of galls poured into the suspected fluid will detect the presence of emetic tartar in the form of a clotted whitish-yellow precipitate; if the poison has been dissolved in water or water and spirit, and if it has been dissolved in wine, the precipitate formed by the tincture of gall will be a bright violet. Or if the solvent of the poison be tea, hydrosulphuret of ammonia produces a red precipitate. When the poison has been taken in a solid form those who are not versant with the taste, feel, and appearance of emetic tartar, will require a more elaborate process to test the suspected article, but the above is sufficient, as by dissolving a little in water the tincture of galls will immediately detect it. Dissections in cases of death from antimonials have shown that the brain, or rather its membranes, the peritoneum, and the mucous membrane of the stomach, are the parts that had suffered most from the action of the poison. See *Emetics* and *Diaphoretics*.

ANTIPHLOGISTICS; a technical term frequently occurring in this and other works on medicine. Antiphlogistic regimen means, or is intended to express, a combination of such medical and dietetic treatment as will keep the system in a cool state, and subdue the heat and burning of fever, for such is the meaning of the term.

The antiphlogistic treatment consists of the use of such means as lessen the general circulation, such as blood-letting, mild purgatives, and

saline aperients, a low diet, the absence of animal food, and in fine, the avoidance of everything in the least calculated to produce blood, and increase the action of the circulating system.

Thin oatmeal gruel acidified with lemon juice; toast and water, that is, an infusion of either toasted oat or wheaten bread in boiling water and allowed to cool, or thin arrow-root, are among the very best articles of diet where the antiphlogistic treatment is necessary. No one who has not had the experience of observing severe inflammatory cases of any of the viscera, whether of disease or accident, especially of the brain, could believe how speedily all the symptoms become aggravated by the administration of a small cup of chicken broth, or beef-tea. It is therefore the duty of patients, and those who have the charge of the sick, to ask and to follow implicitly the directions of an experienced practitioner respecting diet.

ANTISEPTICS are those medicines which possess a power of preventing animal substances from passing into a state of putrefaction, and of arresting putrefaction, when already begun; an operation strictly chemical, which is daily employed in the preservation of dead animal and even vegetable matter.

ANTISCORBUTICS; medicines which cure or relieve the scurvy. The most celebrated of these are lemon juice, acid fruits, and salads, such as water cresses, brook lime, common and wood sorrel, also pickled cabbage, with a variety of other articles, which will be found under their respective appellations. See *Scurvy Grass* and *Scurvy*.

ANTISPASMODICS are those medicines which possess the power of allaying or removing spasms or cramps. It may, however, be doubted whether there be any substance capable of producing such an effect which does not find a place in some of the other divisions of the Materia Medica. In fact, the irregular action denominated spasm proceeds from various, and even opposite causes, sometimes from an affection of the sanguineous, and at other times of the nervous system, sometimes from a state of excitement, at other times of debility, and of course the remedies must be various as the causes. Of these remedies the most universally applicable is opium; after which we may place sedatives generally, then ammonia and its preparations, ether, musk, asafœtida, camphor, valerian, and some others.

The combination, forty to sixty drops of laudanum, with two drams or even half an ounce of the simple tincture of asafœtida, mixed with half a gill of warm water, used as an enema, is a most powerful and effective antispasmodic; and the anodyne narcotic draught, or enema, is likewise reckoned a most efficacious antispasmodic, the prescription for preparing which will be found in the *Domestic Pharmacopeia*. See *Hysteria*, *Epilepsy*, &c.

ANUS, in anatomy, is the external orifice of the lower intestines, the extremity of the rectum, the fundament, whose office is to form an outlet for the fæces. The anus, or extremity of the rectum, is furnished with muscles whose combined and separate actions perform most important functions in the animal economy. These are, first, the *sphincter muscle*, which forms a broad circular band of fibres, and keeps the orifice closed; and, secondly, the *levatores ani*, or the levator muscles of the anus, which serve to dilate, and draw it up to its natural situation after the expulsion of the fæces. In common with the rest of the neighbouring intestines, the anus is surrounded with muscular fibres, and a very loose sort of cellular substance, which severally combine to facilitate the actions which it is required to perform.

The anus and rectum are subject to a variety of diseases. The most common of these are abscesses, *fistula in ano*, excrescences, imperforation in new born infants, prolapsus, or falling down (most frequently occurring in children), piles and ulcerations.

ANUS, Artificial. See *Rupture* or *Hernia*.

ANUS, Imperforate. Imperforate anus is the name given to that congenital malformation, in which there is no opening externally, or anus, and hence all children should be carefully examined when they are born; some cases of imperforate anus are very easily remedied by a very simple operation, but others of greater difficulty occur; in every case, however, immediate recourse should be had to an expert surgeon. There is, occasionally, an imperforation or malposition of the anus, in which the opening terminates in some other place; as the bladder, &c., in males, and the vagina in female children.

ANUS, Prolapsus of; or the protrusion or falling down of the gut or rectum. The prolapsus ani consists in an eversion of the rectum, occasioned either by relaxation or irritation, and frequently occurs in children who are affected with ascarides, or small worms, which lodge in and irritate the lower part of the bowels, or by gravel or calculi of the urinary bladder, or by weakly and delicate children sitting too long and straining at stool. In adults it sometimes occurs in pregnant females, and is in other cases induced by hæmorrhoids, constipation, diarrhea, dysentery, and the use of drastic purges, and is more common in the old than in those of middle life. We have known it brought on by a continued use of those vile drugs called Morrison's and Greer's pills.

When the disease occurs in children, the gut or intestine, which frequently protrudes from three to four, or even in some cases, five or six

inches, returns without the employment of any means whatever; and we have seen children from seven to eight years who were subject to it reduce or return it themselves, merely by reclining and pressing on the hips on each side, and drawing more closely the abdominal muscles. When children are too young to effect this, the child may be placed on its face over the thigh of its attendant, and the gut gently anointed with olive oil, or fresh lard or butter. The hips are then to be separated as far from each other as possible and quickly shut, pressing on the hips on each side, and during this latter part of the operation, the intestines will frequently return. Or the finger smeared with any of the above oily substances may be introduced into the gut, gently pressing against the upper part of the protrusion, so as to retain it, when the remainder will quickly follow.

Sometimes, however, the reduction is attended with considerable difficulty, and under these circumstances a surgeon should be applied to, as on some occasions the prolapsed gut has become gangrenous and sloughed off. If worms or diarrhea is the cause, proper means must be taken to remove these, as pointed out under their respective heads.

In cases, where inflammation as well as swelling and great pain occur, the application of leeches and fomentations will be necessary. In children who are affected with this falling down or prolapsus, there should be kept constantly applied pledgets wetted with the compound decoction of oak bark, frequently renewed, especially after every time the child has a stool, and the gut has been down and returned.

This disease is sometimes very troublesome in the adult, and an operation has been had recourse to it for its cure. In cases where a bandage or truss is required, the patient should consult an experienced surgeon.

ANXIETY. By this term is to be understood a feverish and restless state of mind, arising from too keen a perception of existing troubles and difficulties, or a fretful anticipation of several evils to come. The anxieties of youth are less dangerous than those of middle or advanced age; for whatever troubles, real or imaginary, cloud the minds of the young, there are, in the natural course of things, so many channels whence they can escape from grief and melancholy. With more advanced age, however, the case is different, as the future presents little of reality or romance calculated to assuage the sorrows of a depressed mind. The recollections of a life not ill spent, and a dependence on higher sources of comfort than are presented in the world around them, can best relieve and sustain the broken spirits and anxious minds of aged persons.

It will not be expected that we should propose a cure for this malady. In fact, in advanced life we can have nothing to offer with confidence on that view beyond a caution, that the symptoms of the disease (for verily a disease it is) be not met by too active medical treatment, as the means even of alleviation, not to say of cure, are not to be met with in the best supplied apothecaries' halls. It is not, however, very improbable that the important change in the condition of the constitution, is connected with a deficiency in the energy of the brain itself, and a regular supply of the nervous influence to the heart.

When torpor of the stomach and digestive organs accompany this state of mental perturbation, the warmer purgatives are to be preferred to saline or cooling medicines. The compound decoction of aloes, in divided doses, or two ounces, diluted with four of linseed tea, and administered as an enema every second or third night, will likewise be found very beneficial in such cases.

AORTA. The aorta is the large arterial trunk which arises from the left ventricle of the heart, forms an arch towards the dorsal vertebræ, then descends through the diaphragm or midriff, into the abdomen, in which it proceeds by the left side of the spine, to the last vertebræ of the loins, where it divides into the two iliac arteries. In this course it gives out, just above its origin, two coronary arteries to the heart, and then forms an arch. From its origin to its curve, it is termed the ascending aorta; and from the arch to its division, it is called the descending aorta.

In fine, the trunk of the aorta gives off every branch that supplies the trunk of the body, as well as the lower extremities, as the branches just enumerated divide into such other smaller branches as supply every part of the head, neck, and upper extremities; and, therefore, every artery, however minute, is only a branch or subdivision, or twig of the aorta, taking its name from the locality which it supplies with blood.

The aorta, at its roots or origin, is about an inch and a quarter in diameter, and its sides are about a twelfth of an inch thick.

This important arterial trunk is liable to aneurism and ossification; indeed, the aorta, and the branches it gives off at or near the point it emerges from the heart, especially the ascending branches, are more especially liable to disease. See Plate of *Blood-vessels*, and likewise the *Cut of the Chest* which accompanies the article *Abdomen*; see, also, *Arteries*, and *Circulation*.

APERIENT, OR APERIENTS, opening medicines, which act gently, on the alimentary canal. Hence we have aperient pills, mixtures, electuaries, boluses, and emulsions. A common aperient pill is formed by beating together equal parts of aloes, powder of rhubarb, and gum myrrh, with a little syrup or mucilage, and form-

ing the mass into ordinary sized pills, two or three of which taken at bed-time, keep the bowels gently open: or the following, which we consider to be a form of aperient stomachic pill more especially applicable to the constipated, sedentary and dyspeptic, than any other form we have ever tried:

Extract of Aloes, purified,
——— Camomile Flowers,
——— Rhubarb,
——— Dandelion, each one dram.
Peppermint,
Oil of Camomile, each twelve drops.

Beat into a uniform mass, and divide into sixty-four pills.

If the mass is too soft to form into pills, a little aromatic powder, or cinnamon, or ginger, may be added to bring it to a proper consistence. Two or three pills may be taken an hour before meals. Castor oil, in general, acts as an aperient; and a useful aperient electuary is formed by mixing half an ounce of sublimed sulphur (flowers of sulphur), and one-fourth ounce of cream of tartar, with two ounces of treacle, and taking a fourth part every night at bed-time. The Chelsea pensioner, a similar electuary, famed for the cure of rheumatism, is an useful warm aperient medicine. One ounce of Epsom salts, dissolved in half a pint of infusion of red roses, with the addition of thirty drops of elixir of vitriol, and a fourth part taken night and morning, is an agreeable cooling aperient, and a favourite medicine with fashionable London apothecaries. See *Cathartics*.

APOPLEXY, Cerebral, may be defined the cessation of voluntary motion, the loss of feeling, consciousness of existence, and an apparent, perhaps a real, suspension of the functions of the brain, the respiration and circulation, though more or less disturbed, furnishing the only evidence that the sufferer is alive.

There are several species of this disease, according to the causes from which it is supposed to arise; as the atrabilious, cataleptic, hydrocephalic, from poison, sanguineous, serous, suffocative, and traumatic. Apoplexy may also appear as a sequel or attendant on several other diseases. Indeed pressure on the brain, or retarded circulation, especially in the veins of the brain, is now supposed to be the cause of every case of apoplexy. It is not, however, our intention to enter into a critical examination of its numerous ramifications, which would be a work of supererogation in a volume devoted to domestic medicine, as it is indeed a disease that should never be treated but by a skilful and experienced practitioner, however much may be done in the way of prevention, and even of cure, by the observation of a few simple rules.

Symptoms. When passing along the road or street, we may observe a fellow traveller suddenly drop down, and to all appearance dead: if, however, we place our finger on his pulse, we may perceive that the circulation still proceeds, though slow and irregular, and scarcely perceptible; and if the hand is applied on the chest, the motion of the heart may perchance be felt. Of this sudden attack the suffering individual had no previous warning, being laid prostrate as with a blow from an unperceived quarter. In other cases the apoplectic may have had many previous warnings of the coming attack, such as vertigo, or giddiness, confused vision, as if strange objects were floating in the air before him; and sometimes double vision, a stuttering and faultering speech, an unsteady or tremulous gait, an imperfect memory, severe headaches, a drowsy sleepy inclination, a discharge of blood from the nose, and many other symptoms and tokens of a deranged state of the brain. Still, however these symptoms may exist for weeks, it may be for months, especially in what is denominated the most serious kind of apoplexy; and even after the protracted existence of these premonitory warnings, the patient may escape apoplexy, and become idiotic, paralytic, or epileptic. This disease most frequently occurs between the ages of forty and sixty; but in cases of apoplexy from poison, especially from a premature and immoderate indulgence in spirituous liquors, at a much earlier period. When the disease is fully formed, the pulse is frequently slow, jerky, or half intermittent.

Causes. The predisposing and exciting causes are generally connected with the state of the brain. The predisposition has been conceived to be strongest in subjects of a full make, short neck, and rather large heads, with an indolent and inactive temperament, and a tendency to corpulence. The male sex are more frequently the subjects of the disease, from their more constant exposure to the exciting causes, especially in the far advanced stages of life. What has been denominated hæmorrhagic apoplexy, occurs in very young subjects; but the greater proportion are in the period of life already stated, and not a few as late as seventy. There are, too, undoubted proofs of a hereditary tendency to the disease, although authors of considerable eminence have called in question the predisposition of the sanguine, full, plethoric, and short neck, to the disease, and have collected facts, and furnished data, to prove that no external appearance of habit and temperament indicates a predisposition to the disease; nay, that there are a greater number of the thin, and even of the ordinary habit of body, than of those of a fat and plethoric habit of body, afflicted with apoplexy, and our own observation and experience confirm the truth of these opinions. The most fruitful sources of the disease are luxurious living, and a habitual intemperate indulgence of the temper, passions, and appetites, excessive sexual intercourse, especially under provocatives and excitants, whether those be idleness or a full and rich diet, or too generous liquors or me-

dical stimuli, and more especially if these have been indulged at an early age. Intense and long continued study and anxiety—severe bereavements, disappointments, and deferred hope —over and long-continued exertion—and the constant and almost uninterrupted suttling and soaking of porter, strong ale, and wines, especially when associated with cigar smoking.

The depressing passions, as those already named, and others of a kindred character, are not only exciting causes of the disease, but great joy, unexpected success, immoderate fits of laughter, and other mental stimuli, are equally prolific sources of the complaint.

Narcotic intemperance has no ordinary share in the production of the disease, as the voluntary or involuntary, and mistaken introduction of opium, henbane, stramonium, monkshood, fool's parsley, and especially tobacco; this last occasions more apoplectic symptoms than all the others, and in many cases excites rapid inroads on the health of youth by the growing fashion and appetite for cigar smoking. See *Tobacco.*

The fumes of charcoal, and several gases, act in nearly a similar way to narcotics. The effects of the sun's rays, in warm climates, in producing a species of apoplexy, called *coup de soleil,* is well known to voyagers; but even excessively heated and confined apartments will produce the same effect.

Violent exertion, sleeping after too full a meal with a tight neckcloth, and whatever impedes the return of blood from the head, as a dependent posture of the head, &c.; the suppression of usual hemorrhages, such as bleeding at the nose, and cold applied suddenly to the surface of the body and lungs, excites the disease in aged persons. Dr Cheyne classified fifty perfect cases of the disease as to the causes as follows: 1st. Drunkenness, and habitual indulgence in exciting liquors; 2d. The form of the body; 3. Temperament, sanguine; sanguine or choleric, choleric; 4th. Gluttony; 5th. Indolence; 6. Mental anxiety; 7. Fits of passion; 8th. External heat; 9th. The use of tobacco.

These numerous cases will not only serve as warnings, but as beacons to every attentive and considerate reader, and, we hope, induce them to take speedy and effectual means for the prevention of this always sudden and almost always fatal disease.

Diagnostic Symptoms. Apoplexy may be distinguished from epilepsy, as in the latter there is a convulsive state of the body, with foaming at the mouth, while in the former these are absent; from hysteria, by the suspension of sense and motion, not being accompanied by the *globus hystericus,* that is, a feeling as if a ball or small inflated globe were in the throat, and strong constriction felt there; from intoxication, (and we have seen several instances in which apoplexy was mistaken for intoxication,) by the absence of any vinous or spirituous smell about the patient; but especially by the stertorous breathing, and, for the most part, more invincible, insensibility. The mere smell of liquor is, however, alone, no proof of intoxication, as half a glass of wine or punch would produce this smell, and on that account a rash judgment should not be formed till the requisite inquiries are made.

Favourable and unfavourable Symptoms. The want of power in deglutition continuing after the fit has terminated, and the breathing becoming more hurried and laborious, are most unfavourable tokens; while the pulse increases in quickness, the extremities become cold, and partial sweats break out about the temples—these conjoined, are sure prognostications of a fatal termination. On the contrary, the favourable signs are the breathing becoming more free and easy, the pulse less contracted and frequent, the supervention of diarrhea, a warm and general diaphoresis, or the occurrence of spontaneous hemorrhage from the nose, hemorrhoidal vessels, or in the female, from the uterus; a free state of the bowels, with consciousness of all the evacuations. It is, however, extremely difficult to form a correct prognosis until ten days after the attack, unless it has been a first and very mild one.

Prevention. When the warnings and symptoms of the approach of a fit have been given, it is of the utmost importance to consider correctly the case of the patient. If there is a flushed countenance, a full habit, and strong pulse, and especially if any ordinary hæmorrhage from the nose, hæmorrhoids, or in the female, the uterus, blood-letting, local and general, may be employed, by the application of leeches to the anus, in case of suppressed hæmorrhoidal discharge, and likewise to the temples, with cupping at the nape of the neck; purgatives should likewise be employed, and the patient live on a light farinaceous diet.

If, however, the pulse is weaker than natural, especially in the carotid arteries, the countenance sunk, and the head cool, a restorative diet, consisting of arrow-root, sago, or carregen moss, with veal broth and antispasmodics, and stimulants, will be of service, but these should be used with caution; for if the carotid arteries are full, while the countenance is pale and sunk, and if the attack threatens to commence with paralysis, stimulants given internally, or even the outward use of them, as volatile substances held to the nose, would be hurtful. In such cases, blood-letting, with brisk purgatives, and the castor oil and turpentine enema should be administered. Purgatives are useful in almost every case, and one of the best is two ounces of Epsom salts dissolved in a pint and a half of common or peppermint water, with one grain and a half of emetic tartar, dissolved in the mixture, and a wine glassfull to be taken three times a-day. Setons

or issues should be inserted in the nape of the neck, the head shaved, and the scalp rubbed with the tartar emetic ointment till a large crop of pustules are produced. All violent mental emotions, and scenes of excitement, should be studiously avoided. The patient should sleep with elevated pillows; and, in short, every thing should operate to tranquillize the system.

Treatment. If a person is seized with an apoplectic fit out of doors, as is frequently the case, he should be conveyed on a door or shutter, or even on a chair, in a sitting posture, with the head considerably elevated, to the nearest residence to which he can be admitted, if his own is at a considerable distance, and the best ventilated apartment should be chosen. Every thing should be removed from the neck, from the first moment he is observed, and all tight articles of dress slackened or removed, and directions given to have hot water in readiness. An immediate and careful examination of the appearances should be made; the appearance of the face, if flushed or pale, the state of the pulse, especially in the carotid or temporal arteries, the temperature of the head, and the state of the extremities, particularly the limbs, if they evince sensibility on being pinched. An immediate decision should be given; and if the pulse is full, and the countenance flushed, and evidences of sensibility in the limbs, then the patient should be bled to a great extent. The temporal artery may be opened where there is person qualified to operate; but if not, a vein in each arm may be opened at the same time.

When the patient is a little revived, the turpentine enema may be administered, and local blood letting from the temples, or nape of the neck, according to the degree of fever that may remain; and if the head is hot, a cold lotion of equal parts of spirits, vinegar, and water, should be applied to the head by wetted rags, two or three times folded, care being taken not to continue the application too long, or reduce the temperature too low, as when the skin is reduced to the natural standard the cold effusion should cease. If the enema fails in exciting an action of the bowels, two or three drops of Croton oil, mixed with a tea spoonful of castor oil, should be put on the tongue, if the patient cannot swallow it at once.

The preceding is the general plan of treating an apoplectic fit, when attended with the symptoms of fullness. In very aged patients, blood-letting from the arm cannot with safety be carried so far, and therefore cupping, or leeching, to a considerable extent, in conjunction with more moderate general blood-letting, and the warm bath, should be adopted.

In cases, however, whether of the old or young, where there appears a want of vital energy in the system, recourse must be had to restoratives, such as the camphor mixture, spirit of hartshorn, sulphuric ether, the compound spirit of lavender, and tincture of valerian, either simple or ammoniated; these should be given with caution, and in moderate doses. The doses and mode of administration will be found under their respective heads. At the commencement of the fit, in such cases,—for it does not operate so suddenly as in those of full habits—the application of stimulants to the nose, such as volatile salts, aromatic vinegar, or water of ammonia, may prove beneficial; but in cases attended with paralysis, stimulants, internally or externally, as already observed, may do more harm than good.

It is only in the hope that our work may fall into the hands of those far from medical aid that we have given so full an account of this disease, as in every case where an educated and experienced practitioner can be procured, immediate recourse should be had to him for assistance.

APOTHECARY. According to the original import and application of the word, an apothecary is a person qualified to collect and preserve medicines, and to compound them, according to the prescription of the physician, or the pharmacopeia of the college of physicians.

APPARATUS. It would occupy a volume of no ordinary size, to describe, much less give graphic delineations, even of a tithe of the various apparatus used in the practice of surgery; we shall therefore confine ourselves to a description of those articles which are more or less used in domestic practice; these are, lint, compresses, rollers, adhesive plaster, setons, cushions, and splints.

Lint is a substance so generally known, that it requires no description. A good substitute for it may be made by scraping old linen, so as to render its tissue soft; this is termed by the French, *charpie*, and is used by them in preference to English lint.

Compresses are composed of pieces of lint or linen rags, folded and used for retaining other dressings in their proper places, and for applying pressure in any situation, either for the purpose of preventing bleeding, as over the orifice made in a vein, or for preventing protrusion, as in cases of rupture, for the rupture truss acts as a compress, and its place may often be efficiently supplied by an ordinary compress and bandage, when a truss cannot be procured. The graduated compress is composed of several folds, each gradually diminishing in size, until the whole has a somewhat pyramidal appearance.

Rollers are bandages made either of calico or flannel, varying in length and breadth according to the purpose for which they are applied: they are of two kinds, viz. single and double-headed rollers.

Adhesive plaster has been already described under a separate article; when about to be used, the strips should be warmed by passing them over a slightly heated iron.

Setons are composed of several threads of silk, or a piece of cord or tape passed through a fold of the skin, by means of a broad needle used for the purpose, and are intended to create inflammation, and discharge from the part, so as to cause counter-irritation. A valuable substitute for the cord or tape is to be found in the slips of India rubber tape, to be had of all surgical instrument makers.

Cushions are bags of different shapes and sizes filled with bran or some other soft substance, or composed of linen or flannel folded, and then used to pad splints, to give support to some parts in fractures and dislocations, and prevent the chafing of the skin from bandaging.

Splints are thin pieces of wood or pasteboard, used in treating fractures for maintaining the reduced bones in their situation. The manner of applying the different apparatus will be described when treating of the different accidents and diseases which require their use. There is, however, one kind of apparatus we have not yet mentioned, viz. that for conveying a wounded person home from the place where the accident happened; the simplest and best conveyance of this kind, is formed by means of an empty sack or sheet suspended between two poles, such as the handles of pitch-forks, so as to form a kind of cot suspended between them; on this the patient is to be laid, and the apparatus carried by two persons like a sedan chair.

APPETITE may be defined that natural craving for food produced by certain states of the system, especially of the stomach, digestive, and masticatory organs, which returns at intervals, with more or less regularity, according to the peculiar states and circumstances of individuals.

APPLE. This well known fruit is the production of the *Pyrus Malus*, of which there are about 250 varieties. They may, however, be divided into three classes: 1st. *Desert*, or those that are eaten in the natural state; 2d. *Baking*, or *Kitchen Apples*, or such as are cooked; and 3d. *Cider Apples*, or those employed in making cider and other liquors.

Good ripe apples may be eaten in moderation, not only with safety, but with advantage; but they should not, as is the fashion, be deprived of their skin, neither should they be eaten to too great an extent, as the malic acid which the apple contains is sure to injure the teeth, and render them more liable to decay.

Baked, stewed, or boiled apples, form an agreeable article of diet, but they should not be accompanied by a rich and indigestible pie crust. They not only prove gently laxative, but possess, at the same time, the excellent quality of giving tone and vigour to the intestines.

APRICOT, the fruit of the *Prunus Armeniaca*, of which there are about fifteen varieties cultivated in Britain; but botanists are not agreed as to the place of its nativity. When ripe, apricots are nourishing and wholesome, sweet and nutritious. Indeed, in nutritive qualities, they exceed the peach or the nectarine, and still more so the cherry or the plum. The apricot is used in a raw state at the desert; and although fashion has placed it after the peach, it deserves a higher place. It is formed into confections, marmalades, jellies, and other conserves. The Chinese are said to manufacture the clarified juice into lozenges, which dissolved in water form a refreshing drink. Oil may be extracted from the kernel, which, we have no doubt, like some other nuts of the same class, contains a portion of prussic acid. Dyers use the young shoots of the apricot to impart to wool a fine golden cinnamon colour.

APTHÆ, OR THRUSH, is a disease the chief symptoms of which are a crop of little ulcers in the mouth of a white or yellow colour, to which children are more especially liable.

AQUA FORTIS. Name of a weak and impure nitric acid used in the arts. 'It is,' says Mr Nicholson, 'distinguished by the terms double and single; the single being only half the strength of the other. The artists who use these acids call the more concentrated acid, which is much stronger even than the double aqua fortis, *spirit of nitre*. This distinction appears to be of some utility, and is therefore not improperly retained by chemical writers. For the use of nitric acid in medicine, or the medical treatment when aqua fortis or nitric acid may have been swallowed as a poison, see *Nitric Acid*.

AQUA VITÆ, OR THE WATER OF LIFE. This term has been employed as a commercial phrase to distinguish ardent spirits of the first distillation, which the distillers of malt and mollasses call by the name of low wines. Aqua vitæ is, however, more frequently used to designate some particular favourite drink calculated to impart vigour and animation to the whole bodily and mental economy, and it was formerly applied to certain specifics of the alchymists, to distinguish particular nostrums or specifics designed to render men immortal. See the articles *Spirituous Liquors*, *Delirium Tremens*, &c. &c.

ARABIC, GUM. *Acacia Vera*, *Acacia Nilot*, and *Acacia Arabica*. These three species of acacia, a genus which belongs to the class *Polygamia*, and order *Monecia*, and various other species, of the same genus, furnish us with the substance known by the name of gum arabic, which exudes from the bark of the trunk and branches, and hardens by exposure to the air.

Gum Arabic has a pale yellow colour, and is collected in hard irregular-sized pieces, from the size of a pigeon's egg to a coriander seed, is brittle, with a shining transparent fracture, is soluble in water, but insoluble in alcohol, and is insipid and inodorous. The finer pieces of what

the druggists call 'picked gum,' are white, or a very pale yellow, and free from impurities.

Gum Arabic is employed in medicine internally, as a demulcent, and likewise for the purpose of giving consistence to pills, lozenges, &c. and for uniting oil and other fatty substances with water.

Mucilage of Gum Arabic.

Bruised gum, four ounces.
Boiling water, half a pint.

Saturate or rub together till the gum is dissolved, and strain.

Emulsion of Gum Arabic.

Blanched Sweet Almonds, one ounce.
Refined Sugar, half an ounce.
Mucilage, as above, two ounces.
Water, one quart.

Beat the sugar and almonds together, in a Wedgewood mortar, gradually adding the water and afterwards the mucilage, and strain through a thin search of cloth.

This is sometimes called *Almond Mixture,* or *Milk of Almonds.*

When gum Arabic is employed as a diluent, or a demulcent, the purest should always be chosen.

It is a most useful domestic medicine, and in the above forms will be found frequently prescribed in the columns of this work; it is therefore the less necessary to enlarge on its peculiar qualities. It enters into the composition of various efficient preparations, but the above are the only two formulæ to which it gives a name.

ARM. See *Articulation*, *Skeleton*, *Fractures*, and *Dislocations*.

ARMPIT, OR AXILLA; by both these names is that cavity known which lies immediately under the shoulder joint. It is formed, in so far as the bones are concerned, by the union of the head of the humerus or bone of the arm, and the cavity formed by the scapula, or blade bone, and the clavicle or collar bones. The external integuments, or soft parts, consist of the muscles, tendons, four blood vessels, and nerves, and are connected with the breast, shoulder, and arms.

Hair, especially in males, usually covers the inside of this cavity, and it is not unfrequently the seat of disease, especially of glandular swelling, and abscesses. These swellings are sometimes occasioned by wounds, cuts, or pricks in the fingers, hand, wrist, or lower part of the arm, or by accidents in blood-letting. Morbid or diseased matter introduced by dissection wounds, or by matter from a malignant sore, which is sometimes the case in dressing such sores, occasions swelling and pain in the axilla, or armpit.

The removal of the cause, or general treatment, as detailed under those accidents or diseases which occasions the swelling, is the only plan of relief. When matter forms it should be let out earlier than is usually done in other less depending parts, as it is apt to run down and insinuate itself among the loose muscles of the chest or arm, and give rise to farther trouble and disease. The incision should be kept open by a tent being introduced into the wound; or, in other words, a small slip of rag or surgeon's lint, moistened with basilicon ointment, placed between the edges to prevent its healing, and thus leaving room for the pus, or matter, to escape. It should then be covered with a linseed meal poultice, and this plan continued till all hardness is gone, when the wound, or sore, may be healed by the application of Turner's Cerate. When the hair is thick and long it will be necessary to remove it by clipping or shaving before the abscess is opened.

The absorbents, or lymphatics, are so actively alive, that they immediately seize upon any diseased matter, and carry it into the circulation; and when this is the case, as exemplified in venereal and other buboes, nothing but general or constitutional treatment will heal them. The head of the humerus, or bone of the arm, which is also called the brachia, is frequently lodged in the axilla, in cases of dislocation of the shoulder joint. See *Dislocations*.

AROMATICS. Those medicines which possess an agreeable odour and a warm taste, are denominated aromatics. They are generally characterized by stimulating, tonic, and carminative qualities, and are more especially employed to cover the taste or smell, or correct the griping qualities of other medicines, than from any specific virtue they are supposed to possess. The principal aromatics which are employed in medicine, are the black, white, long, Cayenne, and Jamaica peppers; cinnamon bark and buds, cardamum seeds, cloves, nutmegs, mace, ginger, and their preparations. Cubebs are an example of a stimulating aromatic, exerting a specific action on particular membranes, such as the urethra and vagina, and is therefore employed to check discharges from these parts. We have, likewise, a number of aromatics of home growth, which possess, in a very eminent degree, carminative qualities, or the power of expelling wind or flatus from the stomach and bowels, such as coriander, fennel, caraway, and some other seeds, with their preparations, and the herbs or flowers of the different mints, such as spear and peppermint, lavender, rosemary, &c.; the roots, too, of angelica and salamus aromaticus, likewise possess these properties in a considerable degree; while the seeds of angelica, anise, parsley, and celery, &c., exercise a pervading influence over the whole system, more especially the kidneys.

The more hot and spicy aromatics should be used in small quantities, and at considerable intervals, and with a mixture of those articles most likely to bland or neutralize their heating and stimulating effects. Ginger among the foreign, and the mints, coriander, caraway, and fennel seeds, among our home aromatics, are the most salutary and less heating of the whole class; in-

deed, anise, parsley, celery, and even angelica seeds and roots, might well supply the place of the more expensive aromatics.

ARRACK, a very coarse and impure spirituous liquor, imported chiefly from Batavia and Goa. It is distilled from rice, with varied proportions of the sugar cane and other fermentable substances. The best, as well as the worst, is one of the most pernicious liquors that an emigrant to the places where it is made can possibly swallow. There is a kind of arrack likewise distilled from a juice called toddy. The less, however, that an emigrant to Ceylon, Batavia, or the other islands of the Indian ocean, has to do with the arrack bottle, so much the better; and this advice is the more necessary, seeing it has ruined not only the health, but the character and prospects of many a young man, of which mournful examples might be adduced. Indeed, many stomach, liver, and bilious affections, now attributed to the effects of climate, might more justly, and without any breach of fact, be ascribed to intemperance.

ARROW HEAD, or the *Sagittaria Sagittifolia*. The roots of this plant, when properly prepared, may furnish no mean substitute for the Indian arrow root. When dried and pounded, they have rather an acrid unpleasant taste; but this might be got rid of by repeated washings of the powder, which is a starch not unlike that of the potatoe or arrow root.

ARROW ROOT, the white powder starch, or fecula, procured from the root of the *Maranter Arundinacea*. Under the name of arrow roots, are included the fecula, or starch, of the tuberose roots of several monocotyledonous plants, besides those named, of the genera aridea and amomea.

In commerce, arrow root is often mixed with rice or wheat flour, and still more frequently with potatoe starch, and before it reaches this country, with the farina of the cassava, with which it is most frequently adulterated.

Arrow root, pressed in the hand, makes a noise, and preserves the impression of the fingers; these two characters are wanting in the potatoe starch. The farina of the cassava preserves the impression of the finger; but it is always distinguished by a slight odour, and rather an acrid taste. It is consoling to know, that none of the substances with which arrow root is more commonly adulterated, have a poisonous or deleterious quality. The evil lies in being made to pay a higher price for an article which might be had at a cheaper rate. Arrow root is, however, now so much cheaper than formerly, that there is less temptation to adulterate it.

Arrow root is imported from the East and West Indies, and other quarters of the world; and that brought from Taheite and other islands of the Pacific, is in general of a very superior quality. The powder, or starch, is not, indeed, so white as that obtained from other places; but it yields a richer and more nutritious jelly, as the missionaries have found that repeated washings and bleaching, while it whitens the starch, at the same time deprives it in a great measure of its nutritive properties. The purchaser is to see that the powder, or meal, be fresh, and free of the musty smell or taste it frequently acquires, both by being imported in insufficient packages, or being wetted with sea water, or lying too long in a damp cellar. Arrow root furnishes an excellent article of diet for infants, as well as for the sick and delicate; and as the price has become moderate, may be occasionally used as a common dish, especially as an evening meal, by the sedentary and those who enjoy but a small share of out-door exercise, and are liable to diarrhea, dysentery, or a general lax state of the bowels. It may be cooked or prepared in a variety of ways, according to the taste and circumstances of the individual; the simpler, however, the better. One of the most common, and, perhaps, one of the best forms, is to mix a dessert spoonful of arrow root with half a pint of sweet milk, at the same time place the same quantity of water in a sauce pan, on a clear fire, with the size of a pinch of snuff of salt, and when the water boils, pour in the arrow root and milk, and continue to stir the whole till it boils for three or four minutes, or until a fine clear jelly is formed. This may be eaten with sugar, and a dusting of powder of cinnamon, or a glass of wine may be added, according to taste and circumstances. Where milk cannot be procured, it may be prepared with water alone, using one half the water as directed above when milk is used. Sugar rubbed on fresh lemon peel may be used as a delicate sweetener, and where a stimulating diet is required, half a wine glass of brandy may be substituted for wine; but in cases where wine or brandy is used, the milk may be omitted.

ARSENIC. This name is derived from a Greek word, implying strength as a poison, and did not refer either to our modern metallic arsenic, or the white arsenic of commerce, but to orpiment, a combination of sulphur and arsenic, and popularly called King's Yellow. This metal is diffused in great abundance over the mineral kingdom, in various combinations. Native, or, as it is sometimes called, testaceous arsenic, is found in different parts of Germany, in black heavy masses, of little brilliancy, and more frequently combined with sulphur, forming the protosulphuret of arsenic or orpiment, of a lemon yellow colour, and in this state of combination it is met with about Mount Vesuvius. In addition to the yellow sulphuret of arsenic, or orpiment, there is another variety, combined with an additional proportion of sulphur, called red, or ruby arsenic, or realgar, more transparent than the orpiment, and is met with in compact solid

masses, sometimes crystalized in bright needles. In its metallic state, arsenic is of a whitish gray, or bluish white colour, rarely met with crystalised, and on exposure to air, is subject to tarnish, and becomes first yellowish, and then black; united to oxygen, it constitutes the ore called native oxide of arsenic, a combination of the metal not so frequently met with as the others. Arsenic is likewise found alloyed with antimony, iron, copper, cobalt, lead, tin, and various other metals; and it is chiefly from the cobalt works in Saxony, where zaffre is prepared, that the white oxide, or arsenic of commerce, properly arsenious acid, is procured, the zaffre being the residuum of the cobalt, after the sulphur, arsenic, and other volatile matters mixed with this mineral, have been expelled by calcination. This metal and its compounds are used for a vast variety of purposes in the arts, by glass manufacturers, and combined with metals where a white colour is required; while the orpiment and realgar are chiefly used as pigments by painters. The two latter preparations have been sometimes employed as poisons.

It is however especially with the effects of this metal on the animal economy that we have to do, and it has been long known as one of the most virulent of the metallic poisons. It is in the form of a white powder that arsenic is sold in the shops, and it is in this form that it is most frequently used as a poison. The powder of arsenic cannot by the eye be distinguished from cream of tartar, fine soda, calomel, Rochelle salts, and several other white powders; any mistake may, however, be avoided by a very simple experiment, viz. sprinkling a little of the suspected powder on a heated iron, or even on red hot charcoal, and if it is arsenic, a white vapour will arise, giving out a strong smell of garlic, with which most people are familiar, and if the temperature is high enough, the arsenic will burn with a bluish-white flame. In performing this simple experiment, the experimenter should avoid inhaling any of the arsenical vapour by holding back the head. Indeed, had this easily performed experiment been resorted to, it would have saved many a valuable life that has been destroyed by mistake. But no medicines should be kept except such as are well known, and these should be carefully labelled; and should any be found without being thus specified, it will be much better to destroy it than run any risk—for this test cannot be altogether depended upon, as zinc gives an odour resembling that of arsenic. The common, or white arsenic, is likewise sometimes sold in white semi-vitreous little lumps, or in an unpulverized state; but the same effects will result by subjecting those little lumps to heat, as are produced by the powder; even the tenth of a grain of arsenic, from the fumes of which no danger can accrue, will give out the alliaceous or garlic smell, and this is certainly the most useful practical test a domestic practitioner can employ.

The *symptoms produced by a dangerous dose of arsenic*, according to Orfila, the celebrated French toxicologist, are 'an austere taste in the mouth, frequent ptyalism, continual spitting, constriction of the pharynx and œsophagus, teeth set on edge, hiccup, nausea, vomiting of brown or bloody matter, anxiety, frequent fainting fits, burning heat at the præcordia, inflammation of the lips, tongue, palate, throat, and stomach, acute pain of the latter, rendering the mildest drinks intolerable, black stools of an indescribable fœtor, pulse frequent, oppressed, and irregular, sometimes slow with unequal palpitation of the heart, syncope, insatiable thirst, burning sensation over the whole body, resembling a consuming fire, at times an icy coldness, difficult respiration, cold sweats, scanty urine, of a red or bloody appearance, altered expression of countenance, a livid circle round the eyelids, swelling and itching of the whole body, which becomes covered with livid spots, or with a miliary eruption, prostration of strength, the loss of feeling, especially in the feet and hands, delirium, convulsions, sometimes accompanied with an insupportable priapism, loss of the hair, separation of the epidermis, horrible convulsions and death.'

The general reader, or domestic physician, must not, however, expect to see all those terrific symptoms combined in any one individual who has taken even a very large dose of arsenic, as M. Chaussier and others have satisfactorily proved that death may, and has sometimes ensued in cases where the arsenious acid has been swallowed in large doses, and the preceding symptoms be yet awanting. There are, indeed, exceptions, and they prove that a person may die suddenly of having taken arsenic, and if the body be not examined, the true cause of death may not be ascertained. The inflammation, however, generally extends along the whole course of the alimentary canal, from the mouth to the rectum, and erasion or abrasion of the villous coat of the stomach is but too evident, while particles of the arsenic are generally found when the poison has been swallowed in a solid state on the surface of those abrasions. The inflammation is evident in the duodenum, jejunum, and ileum, and the mucous membrane of the rectum is not only commonly highly inflamed, but ulcerated. The lungs are sometimes black and turgid with blood, but the chief diseased appearances are to be looked for in the stomach and intestines.

The employment of these preparations, with the exception of Fowler's Solution, is now properly abandoned by regular practitioners, and are only used by unprincipled empirics, for the cure of cancer and other severe ulcerations. We would seriously caution our readers against afford

ing any encouragement to the employment of such dangerous and fatal applications.

The same symptoms already detailed may be produced by the injudicious application of powdered arsenic, and pastes or plasters formed with the poison, and even by the arsenical solution of the pharmacopeia, to schirrous or cancerous ulcers, and are even more severe, in some cases, when the poison has been applied to an external wound than when it has been thrown into the stomach itself.

One to two grains of arsenic may cause death in a few days; four grains in twenty-four hours; a dram, or sixty grains, in six or eight hours, but if dissolved in water it will prove much more rapidly fatal.

Treatment. First, Induce vomiting, if not already produced by the arsenic, and as the stomach is in general very irritable, tickling the fauces with a feather may suffice, if not, half a dram of ipecacuanha in a scruple of sulphate of zinc may be administered; and if none of these succeed, recourse must be had to the stomach pump. Secondly, Administer largely tepid diluents, as water, mucilaginous fluids, lime-water, milk, solution of white soap, white of eggs, linseed tea, &c. Thirdly, The tritoxide of iron has recently been highly applauded as in a great degree an antidote, but as it cannot always be procured, the common rust of iron will be found an excellent substitute; about two ounces may be mixed up with any of the diluents, and given at intervals. Sulphureted hydrogen in solution will be found of much service. Fourthly, as the arsenic causes severe inflammation, after it has been in most part removed from the system by vomiting, recourse must be had to bleeding from the arm, and by twenty or thirty leeches to the belly. In addition to bleeding, blisters, and every means to reduce increased action, must be employed.

We merely give a general outline of the treatment, as in every case, if at all possible, call in the aid of an experienced practitioner.

After the more immediately fatal symptoms have been removed, the patient should adopt exclusively a mild farinaceous, mucilaginous, and milk diet; such as sago, tapioca, arrow root, Carregan moss, rich sweetened decoctions of marshmallow roots, and potatoe starch, with flour, or either real or artificial ass's milk.

Arsenic as a remedial agent has for the last fifty or sixty years been pretty extensively employed for the cure and alleviation of disease.

When used in suitable doses, and under the direction of an intelligent practitioner, the usual effects of arsenic are an increase of heat throughout the whole body, and sometimes a slight burning sensation in the throat, extending even to the stomach, a very remarkable increase of appetite, great thirst and diarrhea, augmentation of the secretion of urine, of the perspiration, and of the saliva; although diarrhea is generally caused by the use of it, it is not a constant symptom; for sometimes constipation to a great extent takes place. Indeed, experience proves that arsenic possesses very remarkable virtues, its resolvent action is very powerful, and it constitutes one of the most efficacious means of combating ague, or intermittent fever, and as a remedy in some of the diseases of the skin it is invaluable. The most common form in which it is administered, is that of solution, known sometimes by the name of the Tasteless Ague Drop, or Fowler's Arsenical Solution, Liquor Arsenicalis, and in the Edinburgh pharmacopeia, Solutio Arsenicalis, or Liquor Potassæ Arsenitis, or Solution of the Arsenite of Potass; a fluid dram of the solution contains half a grain of the arsenious acid, that is to say, in seventy drops of the solution there is only half a grain of arsenic. This solution is given in doses of four drops, twice a day, in cold water, gradually increasing the dose one drop till twenty are taken as a dose. It has not only been used in ague, and in certain diseases of the skin, but in protracted rheumatism, where there is much debility, and the ends of the bones much affected, and in threatened apoplexy, after cupping and purging, and even with occasional successes in chorea or St Vitus' dance. Since the introduction of quinine and the reduced price of Peruvian bark, it has not, however, been so much used in the fenny districts, where ague abounds, but still it is preferred by many even to quinine for the cure of that disease; and it has been successful where bark or quinine have failed, but these cases have, we believe, been few. Of late it has been discovered to be almost a specific for the bite of certain venomous serpents. Arsenical preparations, however, should never be employed without professional advice, except in such a case as apparent or certain impending death from the bite of a venomous snake, in which case the sufferer's life might be saved before professional aid was obtained. In such cases the domestic practitioner is scarcely warranted in using this dangerous remedy.

ARSENICAL CANDLES. Professor Everett of London was first induced to suspect the existence of arsenic in candles, by the peculiar alliaceous or garlic odour which was evolved on blowing out the candle. He therefore instituted a set of experiments, and discovered the existence of the suspected poison. He afterwards communicated with some candle manufacturers, who acknowledged that arsenic was employed by them in the composition of these candles, and they adduced the following reason. Since it has been found necessary to use other materials than tallow, sterine has been added occasionally, as having a higher melting point, but this article has a peculiar tendency to crystallize, or *grain*, to obviate which, a quantity of wax

used to be added. It having been found, however, that arsenic would answer the same purpose, and being considerably cheaper, it was preferred by the manufacturers. The results of the analysis showed, that each candle contained at least two grains of arsenic.

ARTERIES. The term artery is applied to those elastic membraneous canals in the human body which pulsate, and was so applied by the ancients, from a belief that they only contained air, and hence the name artery is derived from two Greek words, signifying to hold or contain air.

The arteries are composed of three membranes called coats or tunics, viz., a common or exterior, a middle coat, which is muscular, and an inner, which is smooth. Strictly speaking, there are only two arteries, and these are, the aorta, from the left ventricle,—and the pulmonary artery, from the right ventricle, the rest being branches of these two.

Arteries terminate either in the veins or in capillary exhaling vessels, or they anastomose with one another. It is by their means that the blood is carried from the heart to every part of the body, for nutrition, preservation of life, and the secretion of the different fluids. The pulse is the action of the arteries, or rather a proof of action, corresponds with that of the heart, and is effected by the constriction of their muscular coat, and the great elasticity and smoothness of their inner coat. See *Blood-vessels.*

ARTICHOKE, or *Cynara Solymus,* is a perennial plant, and belongs to a class of esculents which seldom find a place in small cottage gardens. It has numerous large pinnatified leaves, three or four feet long, covered with an ash coloured down, and a deeply channelled and furrowed mid-rib, and flowers in August and September. The part used is contained in the flower heads, while in an immature state. It is the fleshy receptacle called the bottom, freed from the *choke* and *tulus,* or in other words, the bristles and seed down. The bottoms are very commonly fried in paste, and the French use them as a pleasant ingredient in ragouts. Sometimes they are slowly dried, and kept in bags for winter use, and occasionally are used in a fresh state. The French, too, frequently use the bottoms of young artichokes as a salad; they cut the bottom in thin slices, and eat it with oil and vinegar. The tender central leaf stalk of the artichoke blanched, is thought by some to be preferable to that of the *Cardoon,* and the flowers have sometimes been used in the place of rennet, having, like butterwort, the quality of coagulating milk.

The artichoke is propagated by rooted suckers or young shoots; but we have no hope of ever seeing the plant generally cultivated to any great extent in Britain, as the ground it occupies, and other circumstances connected with its culture, as well as the small portion of nourishment it affords, and the rather un-English-like way it is employed, will all combine to limit its use, although some consider it a most agreeable esculent. In proof of these remarks we quote Dr Neil, who states, 'that in order to encourage the production of large main heads, some detach all the lateral heads in a young state. These are commonly not in a fit state for eating raw, having attained only about one-third of their proper size, and they are for this purpose frequently sold in Covent Garden market, chiefly to foreigners.'

ARTICHOKE, OR JERUSALEM ARTICHOKE, or the *Helianthus Tuberosus* of Linnæus. This is a hardy perennial plant, having the habits of the common sun-flower, but much taller, and, on that account, is often planted to afford a salutary shade to such culinary vegetables as require it. Previous to our knowledge or cultivation of potatoes, this plant was reared and much esteemed. It is propagated either by some small offsets, tubers of the main roots, or middling sized roots, cut into pieces for sets, preserving one or two full eyes to each cutting; and this latter is deemed the most eligible mode of propagation. The root is the part used; they are creeping, and are furnished with many red tubers, clustered together, perhaps from thirty to fifty at a plant; indeed, they are sometimes denominated the Jerusalem potatoe. They have received the name of artichokes from the resemblance in flavour which they have to the bottoms of artichokes.

The roots are nutritious, and form a pleasant variety to the culinary stores furnished by the kitchen garden. They are mashed up, or bruised as potatoes or turnips, and eaten alone, or in conjunction with animal food.

They likewise form a pleasant object in the kitchen garden; and although they never flower in this climate, they sometimes grow to the height of ten or twelve feet. They may be boiled, bruised, and formed into bread along with flour, in the same manner as apples, potatoes, turnips, &c.; but the bread made with them is inferior to that made from potatoes.

ARTICULATION has been defined 'the form of a joint, or the method in which the end of one bone is adapted to the part of another with which it is connected for the purposes of motion.' There are, however, two very important agents left out of this definition, viz. the white elastic glistening substances growing to the ends of bones, denominated *cartilages,* and which are divided into those which cover the articulatory surface, and those which lie between the articulating extremities, as in the knee-joint, &c. These form uniting cartilages, which unite bones firmly together, as the symphysis pubis, or front union of the pelvis, the bodies of the

vertebræ, and other bones. These cartilages serve to lubricate the articulation, and to connect some bones by an immovable connection, and likewise facilitate the motion of some articulations.

The other set of agents are elastic and strong membranes, connecting the extremities of the moveable bones, usually called ligaments, which are again divided into capsular and connecting ligaments; the use of the former being to connect the extremities of the movable bones, and prevent the efflux of synovia, or joint oil, and the external and internal connecting ligaments strengthen the extremities of the movable bones. It, however, would fill a volume of no ordinary size were we to enter at length on the minute consideration of the various articulations of the human joints, and all the varied apparatus, with their uses and functions, which enter into their composition. Suffice it to state, that in order to facilitate the various movements of the head backward and forward, and in the act of nodding, looking upward and downward, it is necessary that it should move as an articulated fulcrum, or prop, on which it can turn either backward or forward, up or down, horizontally, to the right or to the left. The two first movements are effected by a hinge bone or joint, fitted to the atlas, or first bone of the neck, but limited by ligaments in its movements backward and forward, to prevent suffocation. The horizontal motion is effected by a peculiar auxiliary, placed on the bone below the first vertebra. It is a process of bone resembling a tooth, which fits into a pivot of the bone above it, and serves as an axle for the head to turn, but only to a limited extent, the muscles on each side protecting it from danger.

There are two principal sorts of joint, viz. the ball and socket, as the thigh bone, or the hip joint and shoulder joint, and the hinge joint, as the knee and ankle, and one or the other is used according to the extent of the motion required.

We have in the outset alluded to that wonderful apparatus, viz. the cartilages, by which all the joints of the body, and the ends of the bones, are covered, to prevent friction and resist assaults; and this yielding substance lines the ball or head of the thigh bone, which is tipped with the same yielding substance, to facilitate its motion, and gives smoothness and uniformity to all its movements, while all and every joint is supplied with the synovial fluid, or joint oil, which prevents the painful effects of excessive motion, and all its morbid and deforming consequences. The principal diseases to which joints are liable, will be discussed in the articles *Hip-Joint*, *Knee-Joint*, and *White Swellings*. See *Dislocations of the Ankle*, &c.; and *Plates of the Skeleton*.

ARUM, the *Common Arum*, *Cuckow Pint*, or *Wake Robin*, or *Arum Maculatum*. (See *Coloured Plate of the Plant*, No. V.) This plant abounds in many parts of England, where the children know it by the name of *Lords and Ladies*. It delights in damp shady places, such as groves and hedges, flowering in April and May, and ripening its seed in harvest. The root is the part used, and when subjected to the same process to which potatoes are, in the making of starch, and the fecula frequently washed, it forms an article of diet, and is prepared in considerable quantities, for the London market, in the neighbourhood of Weymouth, and in Portland island, under the name of Portland sago, and forms a safe and nutritious article of diet, resembling arrow root or potatoe starch.

The root, however, in its recent state, when dug up in the latter end of the year, is possessed of considerable acrimony, and has been employed with great advantage as a medicine in chronic rheumatism, dropsy, jaundice, asthma, and obstructions of the viscera.

The root of arum is indeed one of those medicines which varies exceedingly by being used under certain circumstances. It may be boiled, and eaten with impunity, if growing in particular soils and climates; while in this country, unless deprived of its acrimony by the process of converting it into starch, it acts as a poison. The root should be dug up in the month of October, and buried in sand in a cool cellar. When used in the form of powder, it should be dried slowly on the top of an oven, and the powder afterwards kept in well stoppered bottles, in a dark place.

ASAFŒTIDA, or GUM ASAFŒTIDA, a gum resin, or juice of the *Ferula Asafœtida*, a native of Persia, and composed of gum, resin, and essential oil, It is brought to us in small masses adhering together, and has a peculiar characteristic well known odour. If good it should exhibit, when broken, a whitish, reddish, and violet or blueish appearance, without being brittle, and is easily dissolved in hot water, with which it forms a milk or emulsion, and with rectified spirit, a clear tincture. This medicine has held a place in the Materia Medica from the earliest period of medical history, and is still in deserved repute as an antispasmodic expectorant and emenagogue; and the solution, in the form of an enema, as an anthelmintic in cases of ascarides, or small thread worms. It is used in hysteria, in the form of pills, combined with aloes, galbanum, &c., as a common antispasmodic laxative, in doses of from five to ten, or fifteen grains, of the compound pills night and morning, every second or third day. By the ancients it was used as a condiment, under the name of Laserpitum; and Kempfer asserts, that the Persians use it for the same purpose. It is applied externally in the form of plaster, to the stomach and abdomen, which sometimes relieves flatulence, and renders support to these regions.

The formulæ of asafœtida, as ordered by the colleges, are the

Mixture. L.

Asafœtida, five drams.
Hot Water, one pint.

Triturate the asafœtida with the water gradually until the gum is dissolved, and strain through a linen cloth.

This, which was formerly known by the name of Milk of Asafœtida, is a very convenient form as a vehicle for other medicines or for enemas in all cases where this medicine is indicated.

The Compound Pills of Asafœtida. E.

Asafœtida, Galbanum, and Myrrh, each eight parts.
Rectified oil of amber, one part.

Beat into a mass, and form into ordinary sized pills.

These pills act as antispasmodics and aperients, and are used likewise in chlorosis and hypochondriasis. The dose is two or three at bed time, or two night and morning.

Simple Tincture of Asafœtida. E.

Asafœtida, two ounces.
Rectified spirit, one pint.

Macerate for fourteen days, and for the first seven days shake the bottle occasionally, and at the end of the time named, pour off or decant the clear tincture.

Simple Asafœtida Enema.

The mixture of Asafœtida, as above described,
Warm Sweet Milk, each equal parts.
Mix.

This is a good domestic form for children, or even for adults, and may be used in cases of the small thread worm or in flatulent colic.

ASARABACCA, the herb *Asarum Europeum.* The leaf is the part used. This plant is almost inodorous, with an acrid, hot, nauseous, bitter taste. By drying it loses much of its acrimony. Its effects are emetic, cathartic, diuretic, diaphoretic, and errhine; indeed Dr Cullen asserts, that the leaves of asarabacca form one of the most useful local stimulants as an errhine, used as snuff.

The following is one of the best formulæ for a *Sternutatory Powder:*

Dried Leaves of Asarum,
——————— Marjoram,
——————— Lavender Flowers, each equal parts.
Beat together into a fine powder.

This powder is superior to many sold under the name of *Herb Snuff,* and is a useful errhine in cases of obstinate ophthalmia and chronic headache, and is used as common snuff.

Grimstone's eye-snuff is a composition of this description, and doubtless is of service in many cases of chronic ophthalmia. When a more powerful sternutatory effect is required, one dram of the powder of white hellebore, intimately mixed with an ounce of this powder, may be used.

ASPARAGUS, *Officinalis of Linnæus,* of the class *Hexandria,* and order *Monogynia.* This is, says Dr Cullen, an intermediate substance between root and plant. In its adult state it is remarkably acrid, esculent only in its first stage of growth. This serves to illustrate the different states of plants, according to the time of their growth. There are many other plants which, by age, turn acrid, whose first shoots we might use as food, as hops, thistles, bardana, &c. It is, however, a mucilaginous, nutritive, and slightly stimulant vegetable, very easy of digestion, and well adapted to sickly persons, especially the aged, where a tardy state of the kidneys exists, its effects on the urinary organs being known from the smell it communicates to the urine of those who eat it. The diuretic property is not confined to the tops, but is equally powerful in the root.

ASPHALTUM, OR JEWISH PITCH, a bituminous substance, now justly discarded in medicine.

ASPHYXIA, OR SUSPENDED ANIMATION. There are several species of asphyxia, according to the causes which produce or occasion the affection. By the term is generally understood that state of the body during life, in which the pulsation of the heart and arteries cannot be perceived, which state has, in common language, been denominated *Suspended Animation.* This state of the system is occasioned by drowning, or submersion under water, by hanging or strangulation, by lightning, or by suffocation from noxious vapours from wells, cellars, fermented liquors, &c.; and in the cases of newborn infants, from circumstances attendant on birth. From the obscurity in which the doctrines connected with asphyxia are involved, —the absurdity of the various directions given as applicable to all cases alike, from whatever cause it may have been produced,—and the minute differences (of first importance in a practical point of view) which are apparent only to the accomplished physician,—we judge it right to reserve the details of treatment for the articles under which the various forms of the affection will necessarily fall to be considered, and which must naturally be referred to.

ASTHMA, OR SHORTNESS OF BREATH. Popularly, every shortness of breath, or difficulty of breathing, has been called asthma, although depending upon a great many different affections, and has been defined great difficulty of breathing, recurring at intervals, or in fits or paroxysms, attended with a wheezing sound, a sense of tightness over the breast, great anxiety, an obstructed cough being attendant upon the commencement of the fit, but terminating in mucous expectoration at its close. Asthma is very properly divided into three kinds, the nervous, the spasmodic, or dry, and the catarrhal, humid, or spitting asthma; but these may be variously combined or complicated. The stethoscope is indispensably necessary to enable us to ascertain accurately their varieties and complications.

The first, or nervous, occurs only in persons affected with chronic mucous catarrh, and is therefore accompanied with slight cough and free expectoration; the breathing is generally complete.

The second, or dry, is accompanied with a slight, dry, difficult cough, with a scanty expectoration towards the close. The respiration is imperfect, and from the spasm, rupture of one or more of the air cells sometimes happens, and produces Emphysema of the lungs.

The third, or humid, is characterized by a severe suffocating cough, with early expectoration, at first scanty, but afterwards copious, and affording relief, and is supposed to depend upon congestion of the mucous respiratory surface.

Symptoms. Drowsiness, headache, a sense of fullness, tightness, and flatulence in the region of the stomach, with depression of spirits, and a sluggish state of the bowels, most usually precedes an attack of asthma. At other times the disorder is attended by the symptoms stated in the definition, and seizes upon the patient at once, most frequently during the night after the first sleep, and recurs nightly for some length of time. In some cases the first warning symptom is a sudden inclination to stool, and a discharge of pale urine. This intestinal irritation soon shifts its seat to the stomach, and as speedily leaves the stomach, and takes possession of the chest. The patient is unable to lie down, and struggles and gasps for fresh air, presenting a picture of great distress, and experiencing the most exquisite agony, often attended with a fearful apprehension of immediate death. The duration of the paroxysm is very various in different individuals, and so are the periods at which it returns. These returns are most frequent on any sudden change of the weather, and indeed the asthmatic feels severely every atmospherical vicissitude.

Causes. A hereditary disposition may be frequently set down as one of the most fruitful causes of the disease, as an individual so disposed will be subjected to an attack by the most trifling variation in the atmosphere, or the slightest error in diet or clothing, especially exchanging warm for a less suitable dress, and even exposure to the influence of smoke or offensive odours. Gout, indigestion, and irritation in the stomach and bowels, profuse evacuations, intense mental exertion, sudden disappearance of eruptions on the skin, and irritation proceeding to anger or rage, are all fruitful causes of this truly afflictive disease, especially in those predisposed to its attacks.

Diagnosis. This disease should be easily distinguished from other affections of the lungs and bronchia, or air vessels, such as consumption, hooping cough, bronchitis, spasmodic affections of the larynx, angina pectoris, hydro-thorax, &c., by the periodical character of its attacks, the patient having often long intervals of good health; and although hooping cough is periodical in its paroxysms, they occur more frequently, and are attended by a characteristic *whoop*, and the disease is almost exclusively confined to the young, while asthma more frequently attacks the adult and the aged. But the wheezing and peculiar sense of suffocation is a characteristic symptom that can scarcely be mistaken.

Favourable and Unfavourable Symptoms. When it occurs in young persons, and is not complicated with any other disease, a recovery may be expected; but when it once becomes confirmed, and refuses to yield to proper remedies, no hope need be entertained of a permanent recovery. Where any organic disease exists, according to the organ affected, asthma may terminate in inflammation and dilatation of the bronchii, emphysema, and œdema, inflammation of the lungs, consumption, dropsy of the chest, apoplexy, affections of the heart, &c.

Prevention. Those hereditarily predisposed, and those who have once had an attack, should observe a punctilious attention to diet and regimen. By the latter we mean an attention to the temperate exercise not only of the physical, but likewise of the mental, intellectual, and even the moral faculties. The diet should be light and nutritive, avoiding excess in quantity, and being regulated as to quality by the experience of the individual, who may easily discover those articles which support the system without oppressing either the digestive organs or the general system. Food tending to produce heaviness and sleep immediately after meals, should be studiously avoided. Fermented and spirituous liquors should be shunned by the asthmatic; but if he is not possessed of that strength of nerve to observe strict and total abstinence from these, he may indulge himself with a single glass of cold punch or wine negus, to which may be added a desert spoonful of either the tincture of ginger, or the compound tincture of cinnamon or cardamoms, especially in damp moist weather, or on exposure to sudden changes in the atmosphere. Good coffee is, however, the best drink the asthmatic can use; and this may not only be taken at meals, as an article of diet, but used in the intervals of meals, if drink is required. One fourth part of dried and roasted dandelion root added to the coffee of the asthmatic, will be found a suitable addition.

The regulations for clothing and management of that most important organ, the skin, is, perhaps, even of more importance than a light, temperate, farinaceous diet. Flannel should be worn as an inner shirt, if the skin is not too irritable, and the same substance should form the drawers, which should extend down to the ankles, and this, with warm woollen socks or stockings, should form the unvaried under dress of the asthmatic. If cotton is used as

an under dress, flannel should be worn above it. We have known a fit of asthma brought on by adopting cotton stockings, even in summer, for the usual fleecy woollen ones. The upper dress should likewise be close and substantial; open-breasted waistcoats, and an exposure of the breast with no other covering than the flannel and linen shirts, should never be in fashion with the subject of this disease. Equality, too, in dress is of more importance than is generally imagined,—wearing, for example, short drawers and short socks, and leaving part of the legs only covered with the trowsers; or suddenly changing a thick or heavy article of dress for a thinner or lighter. Those articles which come in immediate contact with the skin should be frequently shifted. Those who can afford the indulgence should have three changes a-week of the three articles, viz. the flannel, cotton, or shamoy shirt, drawers, and stockings; and in very warm weather, when the perspiration is profuse, a daily change, especially of their stockings, would be advantageous, and in some cases is indispensably necessary. In winter, or cold weather, this may be less so; but it is of the utmost importance to preserve, as much as possible, uniformity of temperature and healthy discharge from the skin. An inner Guernsey, or flannel vest, with sleeves, may be worn in winter, which may be replaced in summer by a cotton one of equal thickness, or one of shamoy. Another powerful auxiliary in preserving and promoting the healthy action of the skin, is spunging the skin with tepid water, to which a little vinegar has been added, especially the chest, every time the articles of under dress are changed. In winter or cold weather a fire may be kept in the room while this process of spunging is going on; or the body may be exposed to a shower bath of salt water. Where sea water cannot be obtained, a spoonful of salt may be dissolved in as much water as may be required for the bath. It is best to keep the hair dry, and therefore the head may be covered with an oil cloth bathing cap; but if the bather's head should be shaved, there is no necessity for the cap. The process of drying the body, with considerable friction, is to be used, whether the one or the other of these methods is employed. The observance of either of these plans of cold bathing tends to lessen the sensibility of the body to the effects or impression of cold, and produces and sustains a healthy action in the secretory vessels of the skin, betwixt which and the lungs there is a strong sympathetic connection, as any cause, especially cold, that checks or diminishes the perspiratory process of the skin, is not only one of the most frequent causes of an attack of asthma, but likewise of other diseases of the lungs.

Regular exercise in the open air is likewise of essential service, especially a walk after the use of the bath. The only cases in which there is an exception to the employment of the cold spunging or shower bath, are those in which there are evident symptoms of diseased liver, affections of the heart, attended with palpitation, disorder of the bowels, or advanced life These, or other organic affections, may be known by the state of the person's health in the intervals between the attacks of asthma; and in the case of the aged, a warm bath will be more advantageous.

Of all the preventative means to be used by the asthmatic, there is perhaps none that requires so much careful study and attention as atmospherical vicissitudes. The cautions already given, in this and in our article *Air*, if duly observed, will tend to moderate the effects of these; but if the asthmatic has the power of choosing his own residence, a change of air and climate may do much to keep the disease at bay, if not entirely to overcome it; but where he has not, every attention should be given to prevent exposures in foggy or rainy weather, and nocturnal exposures should especially be avoided.

In all diseases, but especially in this, much depends upon the time when the treatment is commenced, for the identity of the first stage of this disease with common catarrh is undoubted. where the proper remedies are bleeding, blistering, &c.

In many cases patients have been able to recognise the approach of a paroxysm a considerable time before its actual invasion; and simply by bathing the feet, taking warm drinks on going to bed, sweating during the night, and purging in the morning, have prevented the attacks altogether. Indeed, one of the greatest uses of a Domestic Medical Cyclopedia, is to enable patients, or their friends, to prevent disease, or at least to attack it in its very infancy, when most easily managed; for after it has broken down the constitution, and induced constant dyspnœa, depending upon organic disease, little more can be done than to palliate symptoms.

Treatment. This has been long a favourite disease with quacks and empirics, and hence the number of remedies in the form of cough drops, mixtures, and essences, elixirs and lozenges, for the cure of asthmatic and consumptive complaints. The domestic practitioner may venture to bleed a young and vigorous patient to the extent of fourteen ounces; and when he has done so, he may administer half a pint of the compound castor oil enema, and rub well over the whole chest the following

Liniment.

Etherial Tincture of Lobelia,
——————— Hyoscyamus,
——————— Foxglove,
——————— Opium, each one dram.
Soap Liniment, three drams.
Mix.

Before commencing the rubbing, the vial containing the liniment may be dipped into not

water, so as to render the tinctures a little more than blood warm. If these means have not afforded any relief in the course of an hour after the rubbing, a sinapism, the size of our page, is to be applied across the chest, and two other sinapisms, each the size of a common playing card, to the sole of each foot. These should be allowed to remain as long as the patient can suffer them, which is not likely to exceed an hour.

The liniment, with the exception of the tincture of lobelia, we have, after bleeding and bathing, frequently seen afford almost complete relief in about an hour; but we think, from the trials we have made with the addition of the lobelia, that it is now more speedily efficacious. The first time we applied it, considerable nausea was produced, almost amounting to vomiting, and relief was immediately procured. We have stated, that the mucous membranes of the air cells are considerably affected in many cases, and bleeding, and the other treatment we have recommended in the paroxysm, is preferable to the employment of anti-spasmodic medicines.

There are other cases, however, in which bleeding is not admissable; and in these cases the fœtid opiate enema (see *Asafœtida*) should, at the commencement of the paroxysm, be administered, a sinapism applied across the chest, and the following draught taken every two hours:

Etherial Tincture of Lobelia, six drops.
Compound Tincture of Camphor, one dram.
Syrup of Colt's Foot, or of Ginger, three drams.
Simple, or Cinnamon Water, one ounce.
Mix, and form a draught.

If this draught yields no relief, to every succeeding draught two additional drops of the etherial tincture of lobelia, are to be added, and the small sinapisms applied to the feet.

During the fit, as before described, the patient will cry out for fresh air, the window, however, is not to be opened so as to cause a current, for the unequal rush of air will injure more than relieve the sufferer. If the enema remains in the bowels for an hour, or an hour and half, considerable relief will follow; but if it only remains a few minutes, say ten, or even sixteen, another enema is to be exhibited. The draught may likewise be given every six hours; and if the paroxysm is very violent, a grain of the extract of stramonium, and two grains of camphor, in the form of a pill or small bolus, may be given along with every draught. Musk, in doses of six grains, in the form of a draught, has of late been much recommended; but of this remedy we have had no experience. See *Musk*.

In the paroxysm of asthma, the perpendicular, or sitting posture, in a large lofty apartment, is to be preferred; and even in the intervals, the asthmatic should sleep with pillows and bolster more elevated than ordinary.

In addition to our remarks on the state of the atmosphere, under the head of *Prevention*, we may observe, under this division, that when a patient resorts to another quarter as a means of relief or cure, it is somewhat difficult to tender a suitable advice, for the state of air or climate which will agree with one, will disagree with another, and without any very different cause to explain the effect. On this point, too, there have been a variety of opinions, some asserting that a clear, dry, mild climate, was to be preferred; while others, equally entitled to credit, prefer an equable and moderately moist state of the air. 'In nearly all cases,' says Dr Copland, 'however, changes of air are beneficial, chiefly as respects the general health of the patient, and the disorders with which asthma is associated; upon the whole, a temperate, equable, and moderately moist state of the air, is best borne; but even in this there is much uncertainty. The physician must be guided in his choice with the kind of asthma with which the patient is afflicted, and by the ascertained effects of certain seasons and localities in his particular case. In general, a moist and warm, or mild climate, as the south-west extremity of the island (England), will suit the spasmodic, or dry form of the disease, and that most commonly associated with the dry catarrh, much better than any other in this country; whilst the petuitous, or humid variety, occurring in the debilitated or aged, and in those of a relaxed and leucophlegmatic habit, and attended with much expectoration, will require a dry and somewhat bracing state of the air.' The climate of Rothesay in the isle of Bute, and the banks of Ericht, in the haughs near Blairgowrie, in Perthshire, Scotland, are favourable situations for asthmatics; but the sea coasts in the south of Ireland, and likewise in the west of that kingdom, are preferable to either. The climate of Italy or the south of France, has been highly recommended in bad cases.

We have already detailed the practice to be pursued during the paroxysm of asthma, and we now proceed to consider other medical means to be employed in the intervals, and likewise in the paroxysm, especially those more recently introduced into practice. In those cases where there is something like an every day asthma, and continued wheezing and oppression of breathing, especially on the slightest exertion, the use of the decoctions of ground ivy, marsh mallows, or colt's foot, and real or artificial ass milk, and other stimulants, will be found of considerable service. Oily preparations are apt to load and nauseate the stomach; but great relief has been obtained from smoking stramonium or thorn apples, especially in the East Indies, where, however, other species of the plant are employed than those used in Britain. It is the root and lower part of the stem which should be used, although the whole plant, cut in small pieces, is sold in

the shops, any asthmatic may easily raise it, who has a dry gravelly spot in his garden or field, in parts where the wild plant is not to be found. The plant is to be as quickly dried as possible, in a dark place, and the root and lower parts cut in small pieces, and beat so as to divide the fibres; these may be kept in a thick paper bag, tin cannister, or close drawer. The manner of using them is by filling the bowl of a large tobacco pipe, and inhaling the smoke. Stramonium smoke excites a sense of heat in the chest, followed by copious expectoration, and sometimes attended with a temporary vertigo and drowsiness, but rarely nausea. It frequently gives relief when a pipe is thus smoked upon a paroxysm being threatened, or even after its commencement; the patient falls asleep, and awakes free from the paroxysm. In some a perfect cure is effected; but more commonly the relief is only temporary. It has, in numerous cases, been found very valuable as a palliative. Some mix it with equal parts of tobacco, and find it more efficacious.

Another remedy of considerable efficacy, the use of which was, a few years ago, brought into notice by Dr John Andrews, viz. the lobelia inflata, or Indian tobacco. This remedy, like the preceding, is used as tobacco; but is by some deemed more efficacious in the form of tincture, as already explained. Some can smoke this in as great quantity as they do common tobacco; while others are sickened by a single pipe. There are two modes of making the tincture, one is with malt spirit or brandy, and the other with spirits of ether; the mode of preparing both will be found under *Lobelia*. The dose of that made with the common spirit is half a dram; but some can bear as much as a dram of it, though, on an average, the former is nearly as much as can generally be borne of the etherial tincture. From seven to ten drops is generally taken; but this dose, in many people, if begun with, will cause sickness and headache; it is therefore better to begin with five or six drops, and gradually increase the dose, which may be repeated every five or six hours, or oftener. 'I have known,' says Dr Elliotson, 'this ethereal tincture act almost as a charm in arresting the paroxysm; and in ten or twenty minutes after taking it, the patient has been apparently restored to perfect health.' It should, however, be recollected, that where inflammation is present, the patient should be bled, and the inflammatory symptoms be allowed to subside before this medicine is prescribed. In the pure spasmodic asthma of the aged, it certainly is a most powerful remedy. It proves most efficacious when a slight degree of sickness is felt; but in some the smallest dose will produce that effect.

Tobacco comes in for a share of credit in the relief and cure of asthma, and is one of the most generally employed for the disease. It, however, does no good unless it excites a free expectoration, which it does with more certainty when mixed with anise seed and stramonium. In purely spasmodic asthma, the internal use of tobacco, in form of tincture, or wine given in small doses, beginning with five drops, repeated every half hour, and increased two drops each dose till sickness and nausea is felt, will, in many instances, afford speedy relief from the paroxysm. Equal parts of colt's foot leaves, stramonium, anise seed, lobelia, and common tobacco, will be found a most valuable composition for the asthmatic, a large pipe being smoked at bed time, and a lesser before going out in the morning. As the ingredients are bulky, a pipe with a much larger bowl than that in general use should be preferred. The mode of preparing the tincture or wine may be found under *Tobacco*.

Another new remedy has been proposed, viz., the *Bignonia Catalapa*. Encouraged by the success which the Japanese physicians have met with in the employment of the bignonia in different asthmatic affections, some of the medical men in Naples have made trial of the plant, and have obtained results equally satisfactory. By administering it in the morning—a decoction made of the seeds, and part of three or four of the husks of this herb, in twelve ounces of water boiled down to six—and a similar decoction in the evening, the fit of asthma is much diminished in violence. This plant may, therefore, prove a useful auxiliary in the treatment of this disease; but it is not yet common in the shops. In addition to this the tartrate of antimony given early, proves of much service,—two grains dissolved in a glass of water, and a tea spoonful given every ten minutes, till vomiting is induced, then half a tea spoonful given every two or three hours till relieved. Or an emetic, consisting of a scruple of ipecacuanha, and followed by five to ten grains, given every morning or second morning, for a month or six weeks; as also the various preparations of squills.

The inhalation of vapour loaded with alcohol, laudanum, camphor, ether, and especially tar, is said to be of singular advantage to the asthmatic. But, indeed, the remedies recommended for the cure or alleviation of this disease, are innumerable; and we will merely notice further the balsams, as possessing undoubted virtues. The patient, however, would do well always to remember that most depends upon himself, by guarding himself from the various vicissitudes of the weather, by choosing mild nutritious food, by gentle exercise two or three hours after a meal, by particular attention to preserve the temperature of the body regular, especially the feet, which are most assiduously to be kept warm and comfortable (cold damp feet being the occasion of most thoracic diseases), by keeping the bowels always free, and by an equable flow of spirits—the patient will derive more advan-

tage than from any regular course of medical treatment.

Asthmatics at a distance from medical aid, or even medicine, should always have on hand, in addition to the above composition for smoking, a supply of the following articles:—An ounce of laudanum, or black drop, and a small box of opium pills, an ounce of ethereal tincture of lobelia, and the same quantity of the tinctures of henbane and tobacco, and of paregoric elixir, an ounce of ether, half an ounce of gum asafœtida, a small box of pills, each containing two grains of camphor, and two of extract of stramonium, ten grains of tartrate of antimony, two drams of powdered ipecacuanha, balsam of copaiba, &c., and a four ounce, or half pint pewter syringe. In possession of these, and the information contained in this article, the patient, or his friends, may do much to relieve, if not remove the paroxysms of this truly distressing complaint. The asthmatic cough of the aged will be much relieved by a dose of the Compound Ammoniacum Mixture at bed time. It is, however, a satisfaction to know, that although the sufferings from the disease are extremely severe, and have been said even to be worse than those of death, that they scarcely ever terminate fatally.

ASSES' MILK. The milk of the ass has been long celebrated for its healing and salutary effects on the animal economy, and especially for its restorative virtues in consumptive cases. With a view of ascertaining the existence or predominance of the constituent principle or ingredient on which these qualities depend, and whether they could be increased in value by any mode of feeding the animal, M. Piligot instituted various interesting experiments, which we consider of so much value, both to the general and professional reader, that we have submitted the substance of his excellent memoir, read to the Academie des Sciences of Paris, to the attention of all who feel an interest in such interesting inquiries.

M. Piligot having submitted a certain quantity of milk to a series of chemical manipulations, in order to arrive at a knowledge of the relative proportions of butter, sugar of milk, and caseum it contained, proceeds to state, that the density of asses' milk varies from 1030 to 1035, water being 1000. It is very nearly the same as cows' milk, which, however, contains a considerably greater quantity of solid matter. This result, which appears contradictory, is explained by the large quantity of butter in cows' milk compared with the other, which contributes to diminish the density. Asses' milk differs much from other milks, owing especially to the greater proportion of sugar of milk which it contains, and it is to the preponderance of this ingredient that we are probably to attribute its chief medicinal virtues. As an average of sixteen analyses M. P. finds that 100 parts of asses' milk contains,

Solid matter,	9·53	Butter,	1·29
Water,	90·47	Sugar of milk,	6·29
		Caseum,	1·95
	100·00		9·53

The proportion of the solid matter obtained, varied from between 7 and 11 per cent. of the milk; it is sometimes, though rarely, under 7 per cent.

The composition of asses' milk, like that of other milk, varies under the influence of different causes, and especially under that of nourishment. For the purpose of manifesting the effects produced by this last cause, the same ass was fed with different kinds of nourishment for a continued length of time, and at the end of not less than a fortnight of this uniform regimen, its milk was submitted to analysis.

It appears from these analyses, that beet-root is that nourishment which furnishes milk most rich in solid matter; next succeeds a mixture of lucern and oats; then potatoes; and lastly, carrots. M. Piligot, moreover, endeavoured to ascertain the specific gravities of the milk procured under the different kinds of feeding. Their weight was found greater according as the quantity of solid matter existing in the milk was greater; and of course the milk by the beet should have been first; but that by the oats and lucern was of the very same weight; the potatoes came next, and the carrots last. It may be proper to mention, that an interval of nine hours was allowed to pass from the last or previous time of milking. M. Piligot notes this circumstance because it is one which has a great effect on the quality of the principles discovered in the milk. To ascertain the influence of this cause, the following experiments were made. The milk of the same ass was collected an hour and a half after the previous milking, then after six hours had elapsed, and finally when twenty-four hours had expired.

	After 1½ hours.	After 6 hours.	After 24 hours.
Butter,	1·55	1·40	1·23
Sugar of milk,	6·65	6·40	6·33
Caseum,	3·46	1·55	1·01
Solid matter	11·66	9·35	8·57
Water,	88 34	90·65	91·43
	100 00	100·00	100·00

It is evident, then, that the proportion of solid matter became less and less rich in proportion as a long time elapsed after the last milking. This result being contrary to the commonly received opinion, M. Piligot was apprehensive it might have been reached through some accidental means, or because the usual or proper limits in which milk is secreted had been exceeded. A new set of experiments were therefore instituted, taking the milk at an interval of six hours and twelve hours after the former milking, and still the balance, as to the quantity of solid matter, was in favour of the milk taken at the shorter interval, viz. at six hours after the former milk-

ing. It appears, too, that the milk not only varies in its composition according to the greater or shorter period which elapses from the previous milking, but according to analysis, very sensible differences exist as it is taken from the early or late drawn portion of the same milking; and here also the balance is greatly in favour in point of the quantum of solid matter of the third or last portion of the milking, for M. P. divided the milk into three parts, viz. the first third drawn; the second third, and the last; the first being of less value than the second, and the second than the third. This is a fact which has been long well known in our dairies, as the last portions, or strippings, as they are called, are known to be the richest milk.

M. Piligot also endeavoured to ascertain if the introduction of certain mineral substances into the food of the animal passed into the circulation, and affected the milk, and for this purpose gave various substances which could be all detected in the milk, with the exception of chlorine.

We consider the experiments of M. Piligot as truly valuable, not only in a medical, but economical point of view. With respect to the medical and dietetic properties of asses' milk, little need be said. When it is retained on the stomach without producing acidity, or any unpleasant feeling, in conjunction with other hygienic means, it seldom fails in proving highly beneficial to the nervous, dyspeptic, and consumptive invalid; and in cases where there is a hereditary or long established tendency to acidity in the stomach, the administration of bicarbonate of soda to the animal yielding the milk, whether ass, cow, or goat, might tend to correct this painful affection. Asses' milk has likewise often been retained on the stomach in early months of pregnancy, when every other article, either solid or liquid, has been rejected by vomiting.

ASSES' MILK, Artificial. A variety of compounds bearing this name are to be met with, not only in books on cookery, but likewise in the different national pharmacopeias; and as some of them are truly useful, and even agreeable, pectoral, and demulcent diet drinks, we give the following a place. The first is somewhat altered, we hope improved, from the London and Edinburgh pharmacopeias of 1756, where it receives the name of Pectoral Decoction.

No. 1. Pearl Barley,
Best Stoned Raisins,
Best Figs,
Colt's Foot Flowers, dried,
Liquorice Root, each two ounces.
Water, six pints.

No. 2. Pearl Barley,
Hartshorn,
Ivory, or Beef Bone shavings, or powder,
Candied Eryingo Root, each three ounces.
Water, six pints.

The pearl barley is to be carefully freed from any adhering meal or dust; and in No. 1., the barley, stoned raisins, and figs, are first to be boiled till the decoction is reduced to five pints, and then the colt's foot flowers, and the sliced roots, are to be added, and the boiling continued till the whole is reduced to four pints. In No. 2., all the ingredients are to be boiled together at once, down to four pints.

ASTRINGENTS. Medicines which render the solids denser and firmer, by contracting the fibres independently of their living muscular power, have been called astringents. They have a tendency to diminish excessive discharges, and by causing greater compression of the nervous fibrillæ are supposed to lessen morbid sensibility, or irritability. Hence they tend indirectly to restore the strength when impaired by these causes.

We exclude from the list of astringents all those substances which seem rather to belong to the stomachics and tonics, such as have little or no effect except when received into the stomach, and together with their supposed astringency, either promote the powers of digestion, or increase the tone of the muscular fibre. Under certain circumstances one of the most powerful and direct astringents is cold, the action of which is probably in part at least mechanical, although, at the same time, it no doubt affects the vital functions.

Astringents are derived from the mineral and vegetable kingdoms. To the former belong the mineral acids, alum, chalk, lime water, and certain preparations of lead, iron, zinc, and copper. The vegetable astringents used in medicine are, catechu, kino, tormentil root, logwood, bear's whortle-berry, oak bark, and galls, to which may be added, opium, which proves not only a powerful astringent in many cases alone, but a very valuable assistant when joined to others.

The individual articles constituting this class of the Materia Medica, will be found described under their respective designations.

ATLAS, the first vertebræ of the neck, so called because it sustains the head, Atlas being supposed to have supported the world. See *Plate of Skeleton.*

ATMOSPHERE. See *Air.*

AUSCULTATION has been defined the exploration of the sounds which are produced in different parts of the body, whether healthy or diseased. Hippocrates, the father of physic, observed, that the existence of fluids, especially in the thoracic cavity, might sometimes be ascertained by applying the ear to the surface of the body, and others have since called the attention of the medical profession to the sounds produced by the internal motions and actions of bodies, and the advantages which might arise from distinguishing the cause of one kind of sound from another. Little light was, however diffused on

the subject till the appearance of the work of Laennec on Mediate Auscultation. This work was soon translated into English, and a number of works on the same subject have followed. Experience has confirmed most of the statements of Laennec; and he is justly regarded as the father of modern auscultation, and its application to the science of medicine.

Auscultation, or listening by applying the ear to the exterior of any region of the body, has been denominated *immediate;* and when the stethoscope or other instrument is employed, *mediate Auscultation.*

Mediate Auscultation may be applied to a variety of cases, surgical as well as medical, in detecting fractures, &c.; but we conceive one of the most important uses to which it can ever be applied, is the ascertaining the existence or non-existence of pregnancy, and deciding on the state of the fœtus in utero, the auscultator being able to distinguish a living from a dead fœtus. See *Pregnancy.* Valuable as auscultation is as a means for ascertaining the seat and nature of disease—and it is invaluable—it can be of no use to the majority of domestic physicians, as it requires long practice and much attentive observation before it can be employed with advantage.

AXILLA, OR ARMPIT. When the term axillary artery, vein, or nerve, occurs, it means an artery, vein, or nerve, connected with the axilla.

AZOTE, one of the constituents of the atmosphere or air.

AZYGOS, an anatomical term applied to a part without a fellow, as the vena azygos, or single or fellowless vein, which receives the blood from the bronchial, œsophageal, vertebral, and intercostal veins, and empties itself into the superior cava.

B

BACK, PAIN IN THE. Pain in the loins is not an unfrequent complaint, although generally denominated Pain in the Back, without reference to any particular region. It is, indeed, common in Scotland for a patient to say, there is a severe or dull heavy pain in the *small* of the back. Pain in this region may be referred to an affection of the kidneys, or inflammation of the muscles, which may ultimately terminate in psoas abscess.

Pain in this region may likewise be produced by various other causes than either affections of the kidneys or inflammation of the muscles. A continued chronic rheumatic pain may exist, and indeed is often felt in the lumbar region and in other quarters of the body, and is one of the most distressing and painful affections to which civilized man is subjected.

Pain and debility in the lumbar region is, however, more frequently a symptom than a disease; excess in connubial duties, alcoholic and vinous intemperance, and other vices which we dare scarcely name, are often, singly or combined, the fruitful source of pain in the back. Where, however, rheumatism and general debility combine to produce this unpleasant sensation or disease, we have seen the shower bath, sulphureous bath, and frictions with the flesh brush, combined with the internal use of the Harrowgate, or Donegal waters, of the greatest benefit.

BALDNESS. The loss of the hair on the crown of the head, and sometimes over the whole scalp, frequently occurs in very early years. It is occasionally one of the effects of febrile diseases, and might, in many instances, be prevented by frequently shaving the head, and wearing a wig till there is evidence of a uniform crop of hair. There are, however, numerous instances in which baldness occurs in early life, or before the person arrives at thirty years of age, and which gradually makes its appearance without any known cause. We are not aware of any infallible remedy or preventive of this deformity, except it be that of shaving the head as soon as the falling off of the hair begins to appear, and repeating the operation of shaving once a-week, employing, in the interval between the shavings, an ointment composed of the fresh tops of southernwood, boiled in hog's lard, or cocoa nut oil; the latter is preferable. The tops of the southernwood are to be cut small, and boiled with as much lard or oil as will cover them. When the herb becomes brown or crisp the ointment is to be strained through a cloth while hot, and the size of a nut rubbed on the part becoming bald daily. This has sometimes prevented the falling off of the hair; but when baldness has taken place, we are not aware of any means yet employed that has succeeded in restoring hair, and the nostrums or quack medicines for the purpose are some of them worse than useless, and none of any avail; indeed the less of any grease that is applied the better.

BALLOTA LANATA. This plant has been lately introduced into notice by professor Brera, who has published an account of it, and it has likewise attracted the notice of that most useful institution, the Medico-Botanical Society of Lon-

don, and is found to possess considerable influence in the alleviation and cure of chronic rheumatism. It is given in the form of decoction, half an ounce of the plant, gradually increased to six drams, or even to an ounce, being boiled in twelve ounces of water, down to half a pint. This being strained, half is administered night and morning with good effect. It appears to act on the urinary organs and on the skin, causing a burning heat of the integuments, then profuse diaphoresis or sweating, followed by an increased diuresis, the fluid (urine) passed being of a high colour, and depositing a red sediment on standing.

The Ballotta Lanata appears to possess analogous properties with the colchicum or meadow saffron, acting at one time on the bowels, at another on the skin, and sometimes on the urinary organs. From our constant and easy intercourse with those parts of the continent, especially the Italian States, where this plant abounds, we hope it may soon be more easily procured, and even cultivated in Great Britain, as a valuable addition to the Materia Medica, and as an easily prepared remedy in incipient colds and rheumatic affections.

BALM, the *Mellisa Officinalis*, a hardy perennial plant with square stems, which rise two feet high or more, with large ovate leaves, by pairs at the joints. Balm possesses a pleasant odour, something like that of a lemon, with an austere, but not disagreeable taste. The young shoots have the strongest flavour, as the herb in flower, when produced in very moist rich soils, or rainy seasons, is much weaker both in smell and taste. Balm grown on a dry gravelly soil is, therefore, to be preferred; and when cultivated for family use, it is easy to form such a soil when it is not naturally to be met with.

Strong infusions, drank as tea, have been useful in cases where common tea has proved injurious. Those infusions sweetened and lightly acidulated with lemon juice, or a few drops of elixir of vitriol, or cream of tartar, turn to a fine reddish colour, and prove an economical, and to many, a very grateful drink in dry parching fevers. A strong infusion of balm, acidulated with a few drops of elixir of vitriol, is likewise a most appropriate vehicle for Epsom salts, and equal to the acidulated infusion of roses, so great a favourite with the London apothecaries. Balm yields its fine flavour to water, or rectified spirit, by distillation, and an elegant essential oil, in exceeding small quantity. The colleges used to order a simple and compound water, either of which are elegant cordials. The simple is prepared in the same way as that of peppermint, or any other simple distilled water; and the compound by infusing the fresh gathered leaves in combination with fresh lemon peel, coriander seed, nutmegs, cloves, cinnamon, and dried angelica root, in rectified spirit, for a few days, and then distilling or drawing off the spirit in the heat of a water bath, and rectifying by a second distillation. No less an authority than Boerhaave says, 'That he has experienced in himself extraordinary effects from the simple balm water taken on an empty stomach, and that it has scarcely its equal in hypochondriacal and hysterical cases, and in chlorosis and palpitation of the heart, when these diseases proceed from a disorder of the spirits, rather than from any collection of morbific matter.' Balm, however, is but little regarded in modern practice by the faculty; but, at the same time, it is far from being altogether destitute of medical properties, being a mild agreeable stomachic tonic, and as already observed, a pleasant diluent in fibrile diseases. Every purpose to which it can be applied may be attained either by a cold or hot infusion in water, spirit, or fermented liquors, especially the former and the latter. It should, however, never be used in the form of decoction, as its fine essential oil is elevated and carried off by the boiling.

BALSAM, OR BALM OF GILEAD. This once celebrated balsam is procured from the *Balsam Odendron Gileadense*, the tree supposed to be that from which the balm of Gilead of scripture was procured. It belongs to the class *Octandria*, and order *Monogynia*, of Linnæus. It is a middling sized tree, with ternate, occasionally quinate leaves, entire leaflets, flowers growing singly, and drapaceous fruit. The wood, bark, and fruit, yield a liquid resin. That from the wood and branches is called *Xylobalsamum*; that from the bark is termed the Balm of Mecca, Balm of Gilead, or *Opobalsamum*; and that from the fruit, *Carpobalsamum*. The best sort, however, is a spontaneous exudation from the tree, and is held in so high estimation by the Turks, that it is rarely or never to be met with genuine in this country. The tree grows spontaneously, particularly near Mecca, on the Asiatic side of the Red sea.

Its constituents are volatile oil, resin, and extractive, the resin partly soluble in alcohol. The virtues of the balm of Gilead, or what we have as a substitute, the balm of Mecca, or opobalsamum, have doubtless been greatly overrated. The common balsam is seldom used by practitioners in this country, although in some of the continental hospitals it is used in leucorrhœa, and other chronic uterine discharges, exerting the same kind of action as copaiba and the turpentines, and in the same doses and form as copaiba. It is, however, used in considerable quantities by the Asiatics and others, both for its medicinal and odoriferous qualities; and it is, perhaps, on the latter only that its greatest value depends.

BALSAM OF PERU is obtained from the *Myroxylon Peruiferum*, of the class *Decandria*, and order *Monogynia* of Linnæus. By

Decandolle it is placed in the natural order *Leguminosæ*, and by professor Lindley transferred to *Amyrideæ* in the same system. There are two kinds of balsam of Peru, one of a white colour, and the other of a dark brown; the latter is here intended, the first being rarely to be met with. It is a fluid resinous juice, of the consistency of castor oil or thin honey, of a reddish brown colour, inclining to black, and of a sub-acrid biting taste, a fragrant and aromatic odour, resembling that of benzoin, the acid of which is one of its constituents, soluble in alcohol, inflammable, and burns with a white smoke and fragrant odour.

The constituents of the black or liquid balsam of Peru usually sold in the shops, are brown resin, slightly soluble, and the same in greater quantity, completely soluble oil, benzoic acid and extractive. The virtues of this balsam are stimulant, tonic, and expectorant, and it is employed in palsy, chronic asthma, bronchitis, and in rheumatism, and in chronic pulmonary catarrh and phthisis, in lead or painters' colic, and leucorrhœa, gleet, and other kindred affections. Externally it was employed very extensively, and still is occasionally used in the form of tincture, as a stimulant wash to indolent ulcers indisposed to heal; and when employed for this latter purpose, it frequently improves the quality of the matter secreted, and the sore then assumes a healing aspect.

Internally it produces frequency and fullness of the pulse, promotes cutaneous exhalation, and increases the mucous secretions, especially from the bronchial mucous membranes, and on this account it forms an ingredient in the composition of the liquorice lozenge, a safe and useful medicine for the amelioration of the dry hard cough of the aged. The dose internally is from twenty to thirty drops, in some simple water, or decoction of liquorice, or infusion of parsley seed. It may likewise be formed into pills by the addition of any absorbent powder.

BALSAM, Tolu. The tree which yields this balsam is of the same genus with that which produces the preceding article, viz., the *Myrospermum Toluiferum*, formerly designated the *Toluifera Balsamum*. Its constituents are volatile oil, benzoic acid, and resin. Its virtues or effects on the animal system are stimulant and expectorant, and hence it has been used in similar cases as the last; but as it is milder than the other balsams, it has been principally administered in chronic pulmonary complaints, and was at one time industriously advertised in the form of lozenges, as a cure for consumption. Although Tolu is neither a cure for consumption, or any other disease, as far as we know, yet owing to its agreeable flavour, and mild balsamic qualities, it still retains a place in our pharmacopeias.

It may be given in substance, ground into powder, with two parts of sugar, and one of the balsam, in doses of from ten to thirty grains; or it may be made into an emulsion, with gum arabic, sugar, or yolk of egg, as in the case of the preceding. The tincture is a very convenient preparation; it is principally used as an adjunct to cough mixtures, but is objectionable in all inflammatory cases. The syrup is also used as a balsamic and flavouring ingredient; and the simple lozenges of Tolu, prepared by the confectioner, will form an agreeable medical toy, while they lubricate the throat, and impart a pleasant flavour to the breath.

The Syrup of Tolu.

Balsam of Tolu. ten drams.
Boiling Water, one pint.
Sugar, two pounds and a half.

Boil the balsam in the water for half an hour, in a vessel loosely covered, stirring it now and then, and strain the liquor when cold, then add the sugar and dissolve. Some prepare the syrup, by adding two ounces of the tincture to a pint of simple syrup, and then evaporate the spirit by placing the syrup in a steam or sand bath. This syrup is an excellent addition to cough mixtures, imparting sweetness and flavour, and is a very good plain cough medicine, in doses of a desert spoonful occasionally, to moisten the passages. It is very agreeable to children, and likewise useful, if there is no inflammatory action going on. The following is an Italian formula for the balsamic mixture of Tolu, which is used in the hospitals, not only in pulmonary cough, but likewise in gleet and gonorrhea, and prepared as follows:

Balsamic Mixture of Tolu.

Syrup of Tolu (as above), three ounces.
Mucilage of Gum Arabic, eight ounces.
Oil of Sweet Almonds, one ounce and a half.

Mix the syrup and mucilage together in one vessel, and then mix them gradually with the oil, continuing to pour in a little of each into a Wedgewood mortar, and rubbing them together; or the oil syrup, and mucilage may be put into a bottle, and shaking it till the mixture is united. A large spoonful may be taken two, three, or four times a day, according to the urgency of the symptoms.

Tolu forms, also, an ingredient in the compound tincture of benzoin, and in the liquorice lozenges, with opium. The tincture of Tolu forms a useful addition to cough-mixtures.

BAMBOO, or *Bambusa Arundinacea*, is a well known plant in both Indies, and other quarters of the globe. The young shoots are used as pickles; and there is a substance called *tabasheen*, which concretes in the cavity of the full grown bamboo, which is used as a deobstruent medicine by the natives of India.

BANANA, or the *Musa Sapientum* and the *Musa Paradisiaca*, or Plantain Tree. We have placed these two together, because there are

several characters common to both. We shall first describe the latter, viz. the Plantain Tree, which grows spontaneously in many parts of India, but has been long cultivated by the Indians in South America. It is an herbaceous tree, growing to the height of fifteen or twenty feet. From among the leaves come forth a long spike of flowers, in circular bunches, those of the upper spike being all male, and those at the bottom all hermaphrodite. Each of these bunches has its spatha of an oblong form, and a fine purple colour. After these curious flowers, on the minute botanical description of which it is not our province to enter, the fruit soon appears, which is about the size and shape of an ordinary cucumber, and when ripe, of a pale yellow colour, of a mealy substance, a little clammy, a sweetish taste, a luscious flavour, and dissolves in the mouth without chewing. A complete spike of the fruit often weighs forty or fifty pounds. When plantains are brought to table by way of desert, they are either raw, fried, or roasted; but if intended for bread, they are cut before they are ripe, and are then either roasted or boiled. The Indians and planters cut down the trees to get at the fruit, as from their slender form they could not support a ladder; but in doing this they suffer no loss, for the stems are only of one year's growth, and would die if not cut; but the roots continue, and new stems soon spring up, which in a year produce ripe fruit. A liquor is made from the ripe plantains, called Mislaw, for which purpose the fruit is roasted in the husks, and afterwards beaten into a paste, on which they pour water, and draw off the liquor as it is wanted.

As neither the fruit nor the pulp will keep long, but speedily run into putrefaction, the pulp is formed into small cakes, and baked over a slow fire; and as these keep longer, they can make the mislaw by infusing the cakes in water when required, either at home or on a journey. The leaves of the tree are converted into many useful purposes in domestic and rural economy.

The other variety, the *Musa Sapientum*, or the *Banana*, is a native of both the Indies, and cultivated in North and South America, and the islands attached to that vast continent, and throughout the whole extent is known by the name *Banana*. It differs from the preceding in being marked with purple stripes and spots, and the fruit being shorter, straighter, and more obtuse. It grows in bunches, of from ten to fourteen, and sometimes eighteen pounds weight. The banana has a more fragrant smell, a softer pulp, and an agreeable taste, and is far preferable to the plantain, but, says Bryant, inferior to many European fruits. It is never eaten green; but when ripe, it is very agreeable, either eaten raw or fried in slices, as fritters, preserves, and marmalades, and the fermented juice makes an excellent wine, which is relished by all ranks of people in the West Indies.

These plants are cultivated on a very extensive scale in Jamaica, without the fruit of which, Dr Wright says, the island would scarcely be habitable, as no species of provision could supply their place. Even flour, or bread itself, would be less agreeable, and less able to support the laborious negro, so as to enable him to follow his occupation, or to keep in health.

The leaves being smooth, are often employed as dressings after blisters; and the water from the soft trunk is astringent, and employed by some to check diarrhœas. The plantains, also, fatten horses, cattle, swine, dogs, fowls, and other domestic animals; and every other part of the tree, as already stated, is useful in different parts of rural economy, even the leaves serve as napkins and table-cloths. Indeed, the leaves of the *Musa Sapientum*, or banana, is by some authors believed, and perhaps with truth, to be the sort of which our first parents made themselves aprons.

Although these are fruits which, in their fresh state, can only be enjoyed by a favoured few in Britain, they are so very common in many quarters of the globe, resorted to and adopted by our enterprising countrymen, that we could not pass them over by a shorter notice. Excellent, however, as they are as articles of diet, and great as is the blessing that Heaven has bestowed on the inhabitants of these regions, by causing such plants to grow, yet, nevertheless, let emigrants be careful, how and in what manner and quantity they enjoy them on their first arrival in a warm climate. Moderation in every thing is, indeed, indispensable to the European who would preserve his life and health in a tropical or warm climate, but especially moderation in tropical fruits, and ardent, spirituous, and vinous liquors. A few ripe plantains, or bananas, eaten under certain circumstances, and without any preparation, by an individual on his arrival in the East or West Indies, or South America, may produce a disordered stomach and bowels, occasioning diarrhea, if not dysentery, the consequences of which may be fatal. Half a wine glassful of the compound tincture of rhubarb, and one dram of tincture of ginger, is an excellent corrective when either the banana or any other fruit has been taken to excess.

BANDAGES. The form and mode of applying the various bandages employed in domestic surgery, will be found described and illustrated under the articles *Fracture and Surgical Instruments.*

BAREGE WATERS. See *Mineral Waters.*

BARKS. There are a variety of barks used in the practice of medicine and surgery; but there is one kind which, by way of distinction, is yet asked for in the shops, by the name of *barks*, and is occasionally called *Peruvian*, or

Jesuit's Bark, of which there are three kinds, the nature, peculiar characteristics, and officinal preparations of which, will be found under the article *Cinchona*, to which we refer.

BARLEY, or the *Hordeum Distichon*, or *Long-Eared Barley*. There are several kinds of barley cultivated in these kingdoms; and it is a matter of very little consequence which sort is employed for the nourishment either of the healthy or diseased. Our colleges, in wisdom, have, however, fixed upon the long-eared as the most preferable for medical purposes.

Barley deprived of its skin, and somewhat reduced in size in a mill, till it appears in roundish granules of a pearly whiteness, having a viscid sweetish taste, and consisting almost entirely of starch, is denominated *Pearl Barley*, and sometimes *French* or *Scotch Barley*, because, perhaps, as an article of diet, there is more barley used in Scotland, in proportion to its population, than in any other country.

Barley is most extensively employed in the form of malt, into which it is transformed by first steeping the barley in cold water; after a time the water is drained off, the barley is spread out in a deep heap, it soon becomes warm, owing to the chemical action, which forms sugar in it, and the rootlets and future stem shoot. When this happens, the grain is spread on a heated kiln until it is quite dry. The result is malt. When grain has been made to germinate, and the further growth of the embryo plant is checked by drying, its vital principle is extinguished for ever, and this fact has been most satisfactorily proved by experiment by Mr Donovan and others.

In addition to being formed into pearl or pot barley, and malt, the barley, in the state in which it is thrashed and cleaned, is dried, deprived of its cuticle, and ground into flour or meal; and in all these three forms is it used as an article of diet. Indeed, barley, although one of our most common grains, is one of those from which we derive many of the comforts and necessaries of life.

In the first form into which it is manufactured, that of pearl or pot barley, it is very extensively employed as an article of diet. Simply boiled in new milk, or in equal parts of water and milk, it forms a plain economical meal, especially for children, eaten either with or without a little sugar. In this form, too, it is the principal vegetable constituent in barley broth, a favourite national dish in Scotland, especially among the middle, operative, and industrious classes. In this form it is likewise used by our neighbours on the continent, and in various other forms of cookery.

When converted into malt, the infusion, or decoction, has long been deemed an excellent antiscorbutic, under the name of *sweet wort*, which is a favourite domestic prescription for those afflicted with scrofulous ulcers and sores. The malt is likewise converted into a wine or ale, under different names, and of different degrees of strength; and when the worts have undergone the vinous fermentation, there is a spirit distilled from them denominated *whisky*, too well known, and too freely drank by a great proportion of our countrymen. The coarser kind of this whisky, whether from malted or unmalted barley, undergoes a process of rectification in England, and being impregnated with the oils of turpentine and juniper, &c., is transformed into English gin, and does as little good in that quarter of the kingdom as its parent whisky does in Scotland or Ireland.

The barley, when formed into *meal*, is baked into loaves or cakes, either fermented or unfermented, and occasionally made into porridge or stir-about, in the same manner as oatmeal, and is by some preferred to the latter. This dish, with the addition of new milk, simple as it may appear to delicate and refined stomachs, whose original simplicity has been destroyed by luxury, forms an agreeable and nutritious meal for the labourer or mechanic; and if the flour is well manufactured from sound barley, the barley meal porridge is even preferable to oatmeal porridge for the sedentary workman, and also for children; and the barley meal, with a third of wheaten flour, forms an economical and wholesome household bread.

Barley Water, or *Decoction of Barley*. Pearl barley holds a place in the materia medica of the colleges, by which the following preparation is ordered.

Simple Decoction of Barley, or *Barley Water*.

Pearl Barley, two ounces.
Water, four pints and a half.

First wash away any adhering extraneous substances with cold water. Next, having poured upon the barley half a pint of water, boil for a few minutes; let this water be thrown away, and add the remainder of the water, boiling them down one half, and strain.

Acidulated Decoction of Barley is made by adding lemon juice, or citric acid, and sugar, to the simple decoction, or the jelly or jam of any of the acid fruits, or even cream of tartar.

These decoctions are extremely nutritious, demulcent, and mucilaginous, and are used in febrile and inflammatory diseases, and in affections of the chest and catarrhs. The simple decoction, with a little nitre, say a dram, in half a pint, is an excellent gargle in inflammatory sore throat; and the decoction of the barley with the addition of gum forms a suitable diluent in stranguary, dysury, and other affections of the bladder and urinary organs. The gum finds a passage into the bladder, it is supposed, in an unaltered state, mixes with the urine, and prevents the action of its neutral salts on the urinary canal.

BARYTES, or BARIUM. The metallic

basis of the earth *Barytes* has been called *Barium* by its discoverer, Sir H. Davy. Barytes is one of the primitive earths, remarkable for its great specific gravity, from which circumstance its name is derived. It has been employed in medicine in the form of a solution of the *Muriate of Barytes*, or the *Chloride of Barium*, as it is called in the new London Pharmacopeia. The chloride of barium, or muriate of barytes, is made by dissolving the carbonate of barytes in diluted muriatic acid. The preparation thus produced, and known by these two different names, is inodorous, with a bitter disagreeable taste, crystals colourless, permanent tables, and soluble in three parts of water at 60°, but scarcely at all in alcohol. This muriate, or chloride, dissolved in distilled water, forms the only preparation ordered by the colleges to be used in medicine, and is prepared as follows:

Solution of Muriate of Barytes, or *Chloride of Barium.*

Chloride of Barium, one dram.
Distilled Water, one fluid ounce.
Dissolve the Chloride of Barium, and strain.

This forms a limpid colourless fluid. This preparation operates as a stimulant, deobstruent, and diuretic; in large doses, is emetic and purgative, and externally escharotic. It is used in scrofulous affections, glandular obstructions, worms, and cutaneous diseases, and externally to fungous ulcers and specks on the cornea of the eye. Its dose is from three to ten drops in distilled water, beginning with three drops, and gradually increasing the dose by one drop till nausea is produced, when it is relinquished for some days, and then begun, as at first, with a dose of three drops twice or thrice a-day.

Our own experience informs us that it is worse than worthless; but we are not infallible, and may be mistaken. It is supposed to act as a deobstruent in the cure of scrofula; but as Dr Bostock, remarks, 'it is difficult to say what is the exact meaning that ought to be attached to this term; and even upon purely empirical grounds, it must be considered as very doubtful whether this substance has ever proved of any essential benefit as a medical agent.' We are, therefore, borne out in the opinion we have formed of its worth and efficacy by high professional authority. Of one thing, however, we are certain, that the muriate of barytes, or chloride of barium, either in a solid or dissolved state, in very moderate doses, proves a *corrosive mineral poison*, and this is the chief reason why we have noticed it, that we may put our readers, who may be induced to swallow it, on their guard, as it continues to be prescribed both by quacks and others.

When muriate of barytes is swallowed in too large quantity, either solid or in solution, the following symptoms of poisoning quickly follow: Violent vomiting, with the most excruciating pains of the stomach and bowels. Stupor, vertigo, paralysis of the lower extremities, and convulsions and death speedily close the scene. Independent of its corrosive property, it acts on the brain and nervous system with the most powerful and destructive force.

Treatment. Glauber or Epsom salts, dissolved in barley water or linseed tea, should be swallowed in great quantities, and the stomach pump employed where it can be procured. These salts decompose the muriate of barytes, and form an inert, insoluble sulphate in the stomach, which is afterwards to be discharged by encouraging vomiting, by tickling the fauces with a feather, and other means. All the salts of barytes are poisonous, except the sulphate; and hence, when the carbonate of barytes is swallowed, which is not indeed so very likely to happen, water acidulated with sulphuric acid should be used as a counter poison; but for all the soluble salts of barytes, the sulphate of soda (Glauber's salts), as above directed, is the preferable remedy. The morbid appearances after death are a general inflamed state of the mucous membrane of the stomach and alimentary canal.

The only *test* the uneducated in chemistry can use, if any of the poison is found, (that is, the muriate of barytes, or its solution,) is by dropping into the solution of it a little sulphuric acid, when a white precipitate will be formed, which is insoluble in nitric acid, or by the suspected fluid yielding, with a solution of nitrate of silver, a white clotted precipitate, insoluble in water and in nitric acid. Barium, or barytes, and its preparations, are, we conceive, striking examples of the evils resulting from the precipitate adoption of new remedies, or rather poisons, into our pharmacopeias, under the sanction of our colleges.

BASIL, OR OXCYMUM. It is propagated by seed, which is procured from Italy, as it seldom ripens in Britain.

BASILICON OINTMENT. There were formerly three kinds of basilicon ointment, and in some parts they are all still kept in the shops, and are great favourites as drawing and cleansing ointments. The one most in repute, and known by the name of *yellow basilicon*, is the only one retained in the pharmacopeia, under the designation of the *resin cerate*, or *cerate of resin*. It is prepared by melting one pound of yellow resin (or rosin), and the same quantity of yellow wax together, over a slow fire, then adding sixteen fluid ounces of olive oil, and straining the whole through a linen cloth while it is hot. If lard is substituted for the oil, as being cheaper and equally useful, two pounds of lard will be required for one of the resin and one of wax.

The *Black Basilicon*, or, as it is now called, the *Ointment of Black Pitch*, is prepared as follows: pitch, wax, and resin, of each nine ounces, olive oil sixteen fluid ounces, melt together, and

express through linen, while hot. A pound and a half of lard may be substituted for the oil.

The former of these is digestive and cleansing, and is generally applied to foul ulcers, and is a very common application to abscesses after they have been opened; hence it has received the popular name of *Drawing Salve*, or *Drawing Ointment*. The latter is stimulant and detergent, and is generally applied, in domestic practice, to cases of tinea capitis, or scald head, and other foul ulcers.

The *Green Basilicon* is of different kinds; in some instances an ointment of common melliot is sold under this name, and is made by boiling ingredients similar to those which form the yellow basilicon, and a handful of fresh melliot together, and then straining; or by mixing a dram of finely powdered verdegris with an ounce of the yellow ointment. The latter composition is an excellent application to foul fungous ulcers.

BASILIC VEIN. There are two veins of the arm, or rather a vein having two branches, the one called the *Basilic*, which ascends on the under side of the arm, at or immediately above the elbow joint; and the other, the *Median Basilic*, situated at the middle of the bend of the arm.

BATH. Baths are generally divided into the cold, hot, shower, tepid, vapour, and medicated. The *cold* is employed in the form of dipping, or immersing the body in cold water, either in a cistern, pond, river, or the sea; and although justly esteemed one of the most innocent remedies, should not be indiscriminately adopted. It is liable to do great injury in all those cases in which there is visceral or internal disease. The constipated should always premise the use of laxative medicines before using it; and if the preceding sentence is rightly understood, the consumptive will religiously avoid it, although cold spunging with vinegar has been employed, it is said, with some degree of success in pulmonary cases. The cold bath is a general tonic for persons of relaxed fibre, especially females, and frequently proves highly advantageous; the popular idea on the subject is certainly correct, and, in fact, embraces all that can be said on the utility and injury that may result from the cold bath.

The *hot bath* is employed generally of a temperature from 93 to 96, and sometimes as high as 100 Fahr.; the *tepid bath* from 62 to 90; and *medicated baths* about the same temperature; while the *vapour bath* is from 100 to 130. But we must regulate the temperature according to the circumstances of the individual case.

BATHING. We intend, under this head, to give a few general cautions and practical directions for the guidance of bathers, in addition to those given in a preceding article, while other hints and instructions will be found interspersed throughout this volume, on the various forms of baths employed in the prevention, alleviation, or cure of disease. These, of course, are interwoven with our descriptions of the remedial agents employed in the cure of those diseases in which bathing forms a part of the treatment.

The seasons for the employment of the cold bath are chiefly the summer and autumn; and except in those cases in which swimming is practised and borne with impunity, the duration of the immersion in the cold bath should never, as a general rule, exceed five minutes. Indeed, the preferable mode is to plunge in, and unless the person can swim, to take two or three moves by way of exercise in the watery element, to come out immediately, dry the surface well, and dress without delay. The common practice, especially in these kingdoms, of plunging or dipping the body completely under the water repeatedly, is a very good one, an established usage against which no sustainable reason can be urged.

The cold bath should be studiously avoided in all those cases where the heat of the body is below the natural standard, where profuse perspiration exists, and likewise where there is any very considerable degree of plethora or fullness of the blood vessels, or any considerable determination of blood to the head, or when the individual is predisposed to inflammatory affections of the lungs. In fine, when cold bathing does harm, it is precisely where the powers of the body are too languid to bring on reaction, and the chilling effects remain unopposed. When the patient feels the shock of immersion very severely, and from experience of its pain has acquired an insuperable dread of its application; when he has felt little or no friendly glow to succeed the first shock, but, on coming out of the bath, remains cold, shivering, sick at the stomach, oppressed with headache, languid, drowsy and listless, and averse to food and exercise during the whole of the day, he may be sure that the bath has been too cold, the shock too severe, and no reaction produced at all adequate to the impression on the surface of the body. 'If a glow, or pleasant feel, succeeds the use of the cold or temperate bath, then will health be acquired for the bather; but if no reaction take place, but, on the contrary, a chilling and unpleasant feeling supervene and continue for some time, the bather should never again immerse the body in cold water.'

Every agent employed for the prevention, alleviation, or cure of disease, has in its turn either suffered unmerited neglect, or been too frequently and intemperately employed; and there has, perhaps, been none more abused than the cold bath, now so very generally and indiscriminately recommended during the summer months. Let any one pay a visit to our sea-bathing quarters, and observe the number of children sport-

ing in the water for an hour, and even adults, and those of whom better things might be expected, often acting the same childish part; and after taking into account the great difference that commonly exists between the summer atmosphere and the temperature of the sea, and say if it is any wonder that chills, colds, and pulmonary diseases, frequently follow a residence at sea-bathing quarters. Parents, guardians, and others, should be especially careful never to allow the young and inexperienced to remain longer in the water than five minutes. An active, healthy boy, who is learning to swim, and who has an experienced teacher or guide, may be allowed a longer time ; but if, even in such cases, the pleasant warm glow is not felt on dressing, after leaving the water, such a boy should never be entrusted alone beyond ten minutes, nor without a teacher and guide, as a chill or cramp might speedily seize him, and prove fatal.

The *Shower Bath* is only another mode of applying the cold bath, as tepid or warm bathing is seldom employed in this way. It is an excellent modern invention, in which water falls gradually, and yet rapidly, through a number of holes or pores, on the patient. The use of the shower bath differs somewhat from cold affusion, or dashing water over the body in a more condensed form, and is not without its advantages, as the effect may be modified, shortened, or prolonged, according to circumstances, and those circumstances will be pointed out in those cases in which we have had occasion to recommend this form of bathing. In the meantime we recommend the sedentary, who, according to the rules we have stated, are eligible candidates for the use of the cold bath, especially sedentary and studious individuals, to employ the cold shower, or plunge bath, at least once a week. One or two gallons of cold pure water, salt or fresh, showered down on the person standing erect, from a height of four feet, or more, above the head, and the body afterwards well dried and dressed, will not fail in imparting energy and vigour to the constitution. There are few houses in which a suitable apparatus might not be erected at a very moderate expense, and would certainly form one of the most effective substitutes for public cold baths that could be found.

In all these cases in which the various kinds of baths and of bathing are recommended, they will be found not only enumerated among the remedial agents employed for the cure or relief of those diseases, but the mode of application will, in many cases, be found minutely described.

BAY TREE, or *Laurus Nobilis*. The leaves and berries of this tree are used in medicine, and for many other purposes in domestic economy. They possess carminative, narcotic, and stimulant properties, and, therefore, when added to pickles or preserves of any kind, ought to be employed with great moderation ; and as they are chiefly used by the cook and drysalter, to impart a flavour, a very small quantity will effect this equally well with a larger.

The berries are an ingredient in the *Cummin Plaster*, which is applied to the pit of the stomach in cases of flatulence, and also to tumours of an indolent character, with a view of exciting action, and promoting suppuration. They are likewise one of the constituents of the *Confection of Rue*.

Both the leaves and berries have a slightly fragrant odour, and an aromatic pungent taste, communicated by an essential oil, which they yield by distillation, and which is administered as a carminative in doses of from two to five or six drops. The leaves, berries, or oil, are, however, seldom used, except in combination with other stimulants, or as an external application. See *Rue*.

BEAN. The common bean is the seed of the *Viscia Faba*. This plant is said to be a native of Egypt. There are many varieties reared in our gardens, and a smaller variety cultivated in the fields; the qualities of these, however, do not differ so much as their size and appearance. All the varieties are wholesome and nutritious, especially when young, to those who labour hard in the open air, and whose stomachs are accustomed to the coarser articles of food. In the latter end of the year the bean should be deprived of the white skin, or covering, with which the inner seed lobes are enveloped, before it is eaten, as that tough substance is most indigestible even in younger beans. As one of the favourite dishes of the working classes, in some quarters of England, are beans and bacon, the union appears to answer very well, as the oily nature of the bacon renders the stomach and bowels less liable to be affected by the flatulence the beans are apt to produce. Persons with delicate stomachs, and of sedentary habits, should not indulge in this kind of food, even when the beans are young, or attempt to make a full meal on this favourite dish, as such indulgences produce flatulency, indigestion, and heartburn. Beans are used extensively, in domestic economy, as food for horses, &c.

BEAN, Kidney, or *French Bean*, the *Phaseolus Vulgaris*. The French beans are here little known in their mature state, as they are used, when young, with their pericarpium, or pods, without being opened, and in this state, when young and well boiled, are easy of digestion, delicately flavoured, and less liable to produce flatulence than pease. 'The phaseoli,' says Cullen, 'in their ripe state, have a bitter disagreeable husk, deprived of which they are more tender, more soluble, and less flatulent than other legumina, even the common pea.' The seeds, when ripe, and deprived of the pod, are farinacious and very nutritive, and form excellent puddings. The young pods are used as a

pickle, and have all the good and bad qualities of acid vegetable pickles, being useful as antiscorbutics, but unfit for the stomachs of dyspeptics.

This useful vegetable is easily cultivated, and deserves a place in the cottage and kitchen garden.

BEAR'S FOOT, *Stinking Hellebore*, or *Setter Wort*. The root, which is one of the parts used, is small, twisted, and beset with numerous slender dark coloured fibres. It is an evergreen perennial, which grows in chalky pastures in the United Kingdom, and various parts of Europe, and, with very few exceptions, might be considered indigenous. It produces flowers in March and April, and seed in June and July. The fresh plant has a most fetid odour and bitter taste, and when chewed, is so extremely acrid as to blister and excoriate the mouth and fauces. Its virtues are much improved by age, and even by the simple process of drying, a peculiarity which belongs to the plants of the same natural order. As a seton, or issue, the root of this plant is used in veterinary surgery. The piece of root introduced is permitted to remain in the flesh of the animal for twenty-four hours, and seldom fails in producing a discharge, which, with proper dressing, continues a very considerable time, and, perhaps from this circumstance, has been derived the name of setter wort, or setter or seton grass.

The chief use of bear's foot as a medicine is to destroy worms, and it was at one time very extensively employed in every kind of worms. As far back as the time of Gerard, the dried leaves, in the form of powder, were used for these purposes. The powder was sprinkled upon the inside of a fig or raisin, which the patient ate, and a few doses of this seldom failed in bringing away dead worms. The decoction of about a dram of the green leaves, in half a pint, or even a gill, of water, and administered as a clyster or enema, never fails in bringing away immense quantities of the small worms which lodge in the folds of the rectum, and which frequently do so to an almost incredible extent.

An infusion of the dried leaves in cider or vinegar, and reduced to a syrup by the addition of sugar, is indeed an effectual worm medicine; but we think it is far better to give it in the form of an enema than administered by the mouth.

In this latter form, even in small doses, of the dried powder of the leaves, from ten to forty grains, or in an infusion or decoction, converted into a syrup, it frequently produces vomiting, and, indeed, other symptoms of a most poisonous and deleterious character; but never fails in bringing away worms when they are present.

It has likewise been extolled in epileptic fits and hypochondriasm; but although a very popular domestic medicine, we do not recommend its adoption without the aid and advice of an experienced practitioner.

Bear's foot is classed with arum and aconite, or monkshood, as an acrid vegetable poison, and requires nearly the same antidotes. If the poison, says Orfila, has been sometime injected, an emetic, combined with a cathartic, should be administered, composed of two or three grains of emetic tartar, and an ounce of Epsom salts. Purgative clysters are also to be administered. If apoplectic symptoms exist, bleeding, or the application of leeches, is advisable ; acidulated drinks should afterwards be employed, and especially vinegar and water, in small doses, frequently repeated. To combat the inflammation that almost invariably succeeds, the acidulated drinks should be replaced by emolient infusions and decoctions, such as the infusions of marsh mallows or violets, or a solution of gum arabic in barley water, or either of the forms of artificial asses' milk, which will be found under that head; or the application of a few leeches to the abdomen may likewise be serviceable.

Where poisoning has been occasioned by the arum maculatum, the same practice may be followed.

BED. It ought to be matter of consideration with every individual to know the nature of those materials on which he sleeps, and the effects produced by those in common use on the health and vigour of the system. Before entering upon the materials of which beds are constructed, we shall notice one or two circumstances as to their position, and whether wholesome or unwholesome. Some beds are formed of lath and plaster, or a thin brick wall, with a door resembling a room door, and the back, and often one of the ends, are formed of the wall of the house; when the door is closed, the bed is completely shut in from view, and the apartment has all the appearance of a parlour or sitting room, in which there is no bed. This is rather an inconvenient bed, especially for the sick or hurt, and is objectionable on the ground of confinement. Families so circumstanced as to require, it may be, two of these beds on the back wall of a room, ought to have a small window in the wall, with a stout accurately fitted shutter, to open for the admission of air, and another small opening, with or without a shutter, in the front, immediately above the door or lid of the bed, and in this way the bed may be thoroughly aired, during the day, by a free circulation of the fresh air.

The very worst form, however, of beds now in use, are those more particularly denominated box, or concealed, or folding-up beds, and likewise sofa beds. Some of the former are made in imitation of a chest of drawers, and during the day occupy no more room. As soon as the person, or persons, leave such beds in the morning, they are immediately folded up, and the bed clothes deprived of the benefit of light and air, during the day, as they are seldom taken down

till a few minutes before going to bed. The very same objection holds good as to sofa beds, where the bed clothes are generally kept in a close recess under the seat of the sofa.

There are likewise suspended or swinging beds, and of these we have an example in the seaman's cot, or hammock, which swings on every movement of the ship, or of the person ; and those, when properly made, are certainly very easy forms of bed for individuals; unless, however, they are hung very low, it requires considerable address to get out and in without being overturned. A cot bed, of which the bottom is square and flat, is certainly a very excellent bed for a delicate invalid, who might enjoy a gentle swing to induce sleep, and even take gentle exercise.

In cold countries more warmth is necessary, and feathers or down were thought of ; and so partial are they in many parts of the north of Europe to feathers, that they actually sleep between two down or feather beds. The use of feather beds, and even pillows, excepting in cold climates and seasons, is highly injurious. It is certainly hurtful in many diseases, and some are directly induced by the adoption of this pernicious practice. Feather beds imbibe the perspired vapours thrown out of the body, and unless they are frequently and carefully shaken, aired in the sun, and the feathers taken out, that the tick may be washed, the perspirable matter taken up from the body may be again re-absorbed or taken into the system, and disease of a malignant kind follow. This is especially liable to be the case where there is nothing but a thin sheet between the body and the tick; and it is, therefore, always necessary to interpose a stout blanket, and thick cotton sheet, between the person and the tick. There is an easy and economical mode of cleaning feather beds, which is to empty the bed, at least once or twice a-year, into a large, stout, but thin hemp or coarse linen bag, which is to be beaten with rods for some time, when much of the dust accumulated will escape through the small openings in the bag. Except for the aged, feather beds should only be used in winter. When chaff is used, it should always be well cleaned, and rendered free of straw and the prickles of thistles, &c. and should be renewed once a-year, or oftener.

Cotton mattresses are much to be recommended, as well as those of hair; but the cotton of which they are formed is often full of impurities, and the hair used is often very unsuitable; but where those articles can be procured properly prepared, they are to be preferred. Caution, however, should be used in making this change, and it is far safer to change from a feather bed to one of oat chaff, than either to a cotton or hair mattress ; but the change should never be made during the winter, as rheumatism and other complaints might thereby be induced in delicate individuals, or those requiring the heat of a feather bed in the cold season. The same remarks apply with respect to the materials of bolsters and pillows.

With regard to the aged, warm bed clothes are highly proper and necessary, in order to preserve and increase their heat ; and by inattention to this circumstance, in very cold climates and seasons, the old have been frequently found dead in their beds in the morning, from the circulation being stopped by the coldness of the night. The aged should likewise sleep in soft woollen blankets, in preference to sheets; or if sheets are used, a large flannel robe, in the form of a very long and full made shirt, extending down to the feet, should be worn next the person.

There is, on the other hand, great danger attendant on young persons sleeping on beds overloaded with sheets and blankets, &c. These overheat the person, and produce the most enervating perspirations, the baleful effects of which are felt by every organ of the body; and young persons, who sleep with the aged, frequently suffer from this cause. Parents should, therefore, accustom their children to sleep under as few bed-clothes as possible, consistent with the maintenance of a mild equable temperature.

We cannot omit this opportunity of recommending to general attention a most excellent fabric for sheets, which has been lately introduced, and is manufactured of coarse soft cotton, of a sufficient width for the largest sized beds. It would be a material improvement were cloth of this width made with linen warp, thereby rendering it more durable. What is usually called a double sheet, of this description, with a thin bed cover, will form a sufficient covering for children and youth, even in the climate of this country, during the summer, and will be found very superior to blankets, which are too warm a covering for youth during that season of the year.

Cotton and linen, or cotton sheets of the texture we have described, should form the chief part of the bed-clothes provided by emigrants to Australia and other warm climates. They are more easily washed than blankets, and infinitely more pleasant during the warm season, either at sea or on shore. This cloth likewise forms a most appropriate under sheet; and two folds interposed between the person and the bed, or mattress, will not only contribute to render the couch more cool, but more pleasant in every respect than when a woollen blanket is employed.

We are the more anxious to impress these hints on the attention of emigrants to southern latitudes, as neither blankets nor linen sheets are suitable materials for bed clothes during the greater portion of the year. The night chills, not unfrequently felt even in warm climates, and the dangers arising from cold, may with equal

facility be averted by additional soft, coarse heavy, cotton sheets, as they would be by blankets, which are so liable to fall victims to the moth in those quarters of the globe, whilst these can be more easily aired and washed than blankets.

BEDCHAMBER. This is an apartment in which most persons in civilized society, more especially the inhabitants of cities, &c. pass one half of their time ; yet it is frequently very ill constructed for the purpose for which it is used or intended. The principal recommendations of a bedroom are, that it be very large and lofty. It ought to be well ventilated during the day, as it is principally occupied in the night, when all doors and windows are shut. The windows should be kept open as much as the season will admit of, that is, in clear sunshine, and an unclouded sky, as nothing is more essential, not only for invalids, but for persons in health, than the admission of a free circulation of air into bed-rooms. On the contrary, nothing can be more imprudent and absurd than the conduct of those who have splendid houses preferring to sleep in small apartments.

Let it, however, be borne in mind, that though pure air is so necessary to health, yet great and sudden ventilation is dangerous; and except in summer or warm autumnal weather, the window of a bedroom should never be open during the night, or drawn down at top more than half an inch, and even then not without the window-curtain or shutter placed over the opening.

There are likewise circumstances in which, even during summer and autumn, it would be not only injudicious, but prove highly injurious, to leave the windows of bedrooms open. Where a house is situated in or near a large garden or orchard, and surrounded by trees, the admission of the night air might produce a state of asphyxia, which has been frequently induced by sleeping in rooms where flowers and greenhouse plants are kept, as vegetables give out an exhalation during the absence of the sun very unfavourable to animal life.

Relaxation of the whole system is induced by sleeping in a warm apartment. The warmth of a sitting room should never exceed the temperature of 60° or 61° of Fahrenheit's thermometer; but that of a bedroom ought to range between 50° and 55°, the medium temperature of our climate lying between these two degrees. Fire should seldom be introduced into bedrooms, except the house is in a very damp situation.

European residents in hot climates ought to be very particular regarding the place they sleep in. The apartment should be dark, and shaded from the rays of the sun and moon, temperate as to heat and cold, and rather inclining to coolness. It is hardly necessary to observe farther, that damp bedrooms ought studiously to be avoided in every variety of climate, as the putrid air they contain is highly pernicious.

The commercial and sedentary inhabitants of large towns, should, where it is practicable, sleep in the suburbs, or as far in the country as their avocations will permit. See *Bed, Sleep, &c.*

BEEF TEA. A nourishing beverage which every nurse considers herself an adept at cooking.

There are two ways in which this plain article of sick-diet is prepared. The *first* is by pouring boiling water over a certain proportion of raw, lean beef, and seasoning it to the palate. It is afterwards allowed to cool, when all the greasy or oily particles will get to the top, and becoming hard, may be easily taken off. It may then be warmed again, and it will be found most acceptable to those who cannot bear fat or oily broths.

The *second* is, however, in our opinion, the preferable mode of proceeding. A pound of the lean part of beef, beaten with a roller, and cut into very thin slices, is put into a quart of water; boil it for ten minutes, taking off the scum; six black pepper-corns, and the same number of the berries of allspice may then be added, and boiled along with the beef another ten minutes. Too long continued boiling deprives the tea or liquid of its peculiar flavour, and it is not so agreeable to a delicate stomach. To these two plans some add a third. They fry the slices of beef in a little beef suet, for three or four minutes on each side, and then boil the beef as above directed. The only advantage of this mode, is that of imparting a richer brown colour to the beef tea. In both cases the fat should be skimmed off. A similar liquor may be prepared from the lean of mutton, but it is not by any means so agreeable to most palates as that prepared from the lean of good beef. A clear, slow, steady fire, is indispensable.

BEER, OR PORTER. Well prepared small or table beer is a nutritious and wholesome beverage. The constituents of beer are similar to those of *Ale*, and the terms are in most cases synonymous or convertible. There is a kind of beer prepared from sugar or molasses, in very general use among the industrious classes in Scotland, which is likewise a very cool and refreshing drink, especially in summer, for the hard working man; and when a small portion of ginger is added, it is certainly preferable to the water which labourers often meet with in the stagnant lakes, and streams, which are frequently impregnated with putrid and animal substances.

Good ripe strong beer or porter, in moderation, or in draughts of not more than half a pint, twice or even thrice a day, where active exertion and out-door labour are combined, can do no possible injury, and in many cases may do much good; and is a most valuable auxiliary in the treatment of those fevers usually denominated putrid. Carbonic acid is combined in

considerable quantity with the nourishing and tonic qualities of this vinous liquor, and in many cases it proves not only a substitute for wine, but in a great variety of instances even superior to that more expensive liquor.

Brisk bottled porter, mixed with oatmeal to the consistence of a cataplasm or poultice, and placed in a warm place, or before a fire, till fermentation appears, likewise forms a useful substitute for the barm or yeast poultice, in situations where barm cannot be procured. Much, perhaps too much, has been said respecting the adulteration of these liquors. Opium, Cocculus Indicus, and other poisonous and intoxicating substances, have no doubt been employed. The great danger arises from the incessant thirst of the *Beer-bibber;* and for one individual who suffers in his health by drinking adulterated porter, there are a thousand who do so from drinking the very best of porter in immoderate quantities.

BEE STING. See *Venomous Animals.*

BEE'S WAX. This useful substance is obtained from the honey-comb after the honey has been removed. The best sort is of a lively yellow colour, having the flavour of honey when new. It is toughish, yet easily broken, but by age it becomes harder and still more brittle, and loses its colour, and in a great measure its smell. It constituents are carbon, hydrogen, and oxygen.

It was once, but is scarcely ever now, employed internally as a remedy, in doses of from a scruple to half a dram, twice or thrice a-day, in the form of emulsion, in cases of diarrhea and dysentery; and is yet frequently prescribed by continental physicians, as an ingredient in *Locatello's Balsam*, in pulmonary cases, as well as in gonorrhea, gleet, and leucorhea.

Its principal use, however, in this country, is as a principal ingredient in cerates and ointments, for which it is well adapted. The wax as well as the honey, in those districts where the bees principally feed on buck wheat, is much whiter than that procured from other plants.

White Wax is nothing more than the yellow wax freed from impurities, and made into thin round cakes, and afterwards bleached by exposure to the sun, by which process the wax is deprived of its fine honey flavour. The white wax is likewise an ingredient in several ointments and cerates.

BEET ROOT is a biennial plant, a native of the south of Europe. It rises with large thick oblong leaves of a reddish or purple hue, and produces greenish flowers in August. The root for which this plant is cultivated, is of a beautiful red colour and sweet taste; it forms, when prepared with vinegar, an excellent pickle, for which purpose it is principally used in this country; and in this form it is one of the best antiscorbutics which seamen or emigrants can use during a long voyage.

In France and other parts of continental Europe it is largely cultivated, and used in the manufacture of sugar.

BELLADONNA, or *Atropa Belladonna*, or *Deadly Night Shade.* This plant is a powerful poison, but when judiciously administered and applied, is one of the most valuable vegetable remedies the materia medica affords. It is indigenous both in mountainous and woody situations, and sometimes cultivated in gardens. The whole plant is poisonous, especially the root, and the berries, which ripen in September, and, from their beautiful appearance, like black cherries, have sometimes proved fatal to children. A reference to the coloured figure in our botanical plates, will afford a more distinct idea of this plant than any description, however plain, and to it we refer.

The symptoms excited by an over dose, or by eating the berries, are extravagant delirium, resembling the frolics of a good natured person in a state of intoxication, and children often exhibit the most ludicrous appearances. The symptoms may, however, be summed up as follows: extreme agitation, continued motion of the hands and fingers, seizing the bed clothes and other objects, high delirium only relating to gay and amusing subjects, vision confused, but the imagination following objects which the patient believes to be present, extreme dilatation and insensibility of the pupil of the eyes, sometimes stationary, at others in motion, spasmodic action of the muscles of the face, grinding of the teeth, voice small and hoarse, slight swelling on the left side of the neck, burning heat in the œsophagus, with dryness of the mouth, trembling of the tongue, distressing thirst, but a determined aversion in many cases to all fluids, and spasms frequently supervene, when an attempt is made to make the sufferer swallow; finally, great excitement of the genital organs, and in males, exertion and involuntary emission of urine. This assemblage of symptoms is somewhat analogous to mania or madness without fever, for the muscular system is seldom at all excited, and the respiration is not accelerated.

The best plan of treatment is, first to empty the stomach by means of the stomach pump, where medical aid can be immediately procured; but if that cannot be had, emetics should be given immediately; such as tartar emetic, in doses of two or three grains, at intervals of ten minutes, till vomiting is produced; or by the sulphate of zinc, fifteen or twenty grains, for a doze, given in warm water in the same manner, tickling the throat at the same time to induce the emetic effect more speedily.

Sometimes in cases of poisoning from narcotics, as the belladonna, it happens that emetics are long of acting, this would seem to depend upon their effects on the nervous system paralyzing the

muscles which act in vomiting; and we should therefore be cautious in increasing the doses of emetics, or repeating them too often, because, though they may fail to produce vomiting, they may give rise to fatal inflammation of the coats of the stomach, and this has actually occurred; in such cases we should try the effect of rousing the nervous system by means of the cold affusion over the head, the application of sinapisms, and administering an enema containing two table spoonfuls of turpentine, which will assist the action of the emetics; when these have acted freely, and the stomach been thus cleared out, a brisk purgative, as castor oil, may be given by the mouth; and the patient made to drink freely of strong coffee, and acidulated drinks which have been recommended both at this period and previously, to assist the emetics, but it is difficult to conceive how they should counteract the narcotic effects, and as some of the most active principles of this class of poisons are formed by their combinations with vegetable acids, they might in that way increase the deleterious effects. If the symptoms of delirium or drowsiness still continue, recourse must be had to cold affusion to the head, warm baths, bleeding in some instances, and above all, the application of sinapisms or blisters along the spine, or to the pit of the stomach, and artificial respiration, which last remedy, when properly applied, may often be of the greatest service.

The symptoms sometimes continue in a slight degree for some hours, or even days, and there generally remains a dimness of vision and stiffness of the neck for sometime afterwards. The subsequent treatment consists in attending to the state of the bowels and the diet of the patient, which should be as light as possible.

Given internally as a medicine, the effects of belladonna are very important and powerful in the cure of some diseases, but as it is a very dangerous medicine, and one which ought never to be used by a non-professional person, we forbear giving any directions as to its use.

In surgery, it is applied externally and principally on account of its action in dilating the pupil of the eye, for which purpose it is used in cases of cataract, either immediately previous to the operation for its cure, or for the purpose of allowing the rays of light to pass through the dilated pupil, and then through the still transparent edges of the lens, in those cases where that body is only partially opaque. It is likewise used in cases of iritis to dilate the pupil, and so prevent the adhesions of the iris, which are apt to form in that disease. In these cases, it is used in the form of extract smeared over the eye-brow and lid, or the extract is dissolved, and the solution dropt into the eye occasionally. It ought to be discontinued, if it gives rise to much headache and giddiness, or any feeling of oppression and sickness.

BELLY. See *Abdomen.*

BENZOIC ACID, or *Flowers of Benjamin.* An acid which is procured from benzoin, by sublimation. It exists in the form of beautiful white flaky crystals, having a fragrant aromatic smell. It was formerly considered a balsamic expectorant, but is now seldom used except in the preparation of the camphorated and ammoniated tinctures of opium. Its action is stimulant and expectorant. When diffused through a room in the form of vapour, by applying heat, it is said to have been found useful in affording relief in some cases of pulmonary consumption.

BENZOIN; a resin or balsam obtained chiefly from Sumatra. Benzoin has a pleasant aromatic odour, and is more used in perfumery than as a medicine. The only officinal preparation of it, besides the benzoic acid, being the compound tincture better known by the name of Friar's or Wade's vulnerary balsam, which was formerly much used as an application to recent wounds, for which purpose it is worse than useless, and has deservedly fallen into disuse.

BETONY, or *Bettonica Officinalis*, is a native plant common in our woods and moors. The leaves and top have an agreeable but weak smell, and to the taste they discover a slight warmth, accompanied with some degree of bitterness and astringency.

Betony snuffed up the nose provokes sneezing, and hence it is sometimes made an ingredient in sternutatory powders, and the leaves are also smoked like tobacco. Although Antonius Musa, physician to the emperor Augustus, filled a whole volume enumerating its virtues, as a remedy for no less than forty-seven disorders, and hence in Italy it is a proverbial compliment, *you have more virtues than Betony*, yet, like many other plants formerly in high estimation, it is now almost entirely neglected. True, indeed, it is used as tea, and in that form is a refreshing beverage, but it is never employed by the Faculty. The roots differ greatly in their quality from the other parts of the plant. Their taste is very bitter and nauseous. Taken in a small dose, they vomit and purge violently, and are supposed to have qualities somewhat in common with the roots of hellebore.

BEZOAR STONES, are calculous concretions found in the stomachs of certain animals, especially of the goat kind. Chemists enumerate not fewer than eight kinds, differing from each other in their chemical constituents. Bezoar was once used in medicine, but as it is not digestible in the stomach or gall bladder of the animal in which it is found, it is scarcely acted upon by the fluids in the human stomach; and if it has any medicinal properties at all, they are only those of a weak absorbent. Its great price prevented it being very generally used, although it is yet considered by the Persians as an antidote to poison, for such is the meaning of the

name it has acquired in that language. The biliary bezoar has a reddish brown colour, and is used by painters as an orange yellow pigment. In fine, we consider bezoar, for all that is yet known of it, as unworthy of notice, were it not that a more correct investigation of its origin, and the causes of its formation, may yet throw some light on the causes of the urinary and biliary concretions that so frequently form in the human gall and urinary bladders; and to warn our countrymen who may visit those quarters of the world against being imposed upon by giving large sums of money for a substance which, as a medicine, is altogether unworthy of notice—its only value being its forming an example or specimen of a morbid animal concretion.

BILBERRY, or *Vacunum Myrtillus;* better known in some parts of Scotland as the *blaeberry*, *blackberry*, or *whortle berry*. This is a small shrubby plant, and is frequently found in woods and upon heaths. The fruit is of the size, shape, and colour of very red currants, having a sort of aperture at their apex, and divided into four cells, containing a few small seeds. The plant is common in Britain and Ireland and the north of Europe. The berries are an excellent subacid cooling fruit, and may be either eaten alone, or in the form of pies, tarts, jelly, or jam. Mixed with milk and a little sugar, they form an excellent dish in July and August. A jam or jelly made of the berries, is a useful domestic sweet-meat, and a wine made of the fruit a little before it is completely ripe, bears a resemblance to port.

BILE, *Bilis*, *Bile*, or *Choler*. Bile in man is a bitter yellowish fluid, or perhaps more correctly, a yellowish green, more or less viscid, and is the peculiar secretion of the liver, received and in part contained in the gall bladder.

Human bile differs very considerably not only in the number but in the proportions of *its various constituents*—water being in all bile in a much greater proportion than any other ingredient; which contributes to keep the secretion in a state of fluidity. According to Berzelius, the constituents of human bile are the following—the articles being arranged according to their proportions, commencing with the highest:—Water, picromel, soda, common salt, albumen, phosphate of soda, with lime, and phosphate of lime. When human bile is evaporated to dryness, it yields all the salts to be found in the bile of the ox. With respect to the *uses of this secretion* in the human body, and in many animals, there exists little difference of opinion among physiologists and physicians, although there may be some slight variations in their respective modes of explaining its action.

It extracts the chyle from the chyme, which it effects by its action on the aliment in the duodenum, as chyle is never observed there before chyme has been mixed with the bile, and this it effects by its sapronean and alkaline properties. It likewise excites the peristaltic motion of the intestines, and hence the bowels are so inactive in cases of jaundice, because the bile which should be supplied to the bowels, is in this disease diffused throughout the system, as is indicated by the yellow colour of the skin. Moreover, it imparts a yellow colour to the excrements and lubricates their surface and substance, so as to allow them to pass off with greater ease. A deficiency or diseased state of the bile is well known by the stools being either too dark or too light. These, however, and other derangements of this important secretion, will be more fully explained in other articles.

BILIOUS. This word, properly applied, means, proceeding from, or containing bile. Thus we say a bilious fluid, in the latter sense, or bilious disease, in the former.

This last term, bilious disease or complaint, is often used indiscriminately by patients to express any derangement of the digestive organs, though no doubt these are often enough dependant on biliary derangement. When such is the case, it is indicated by the bitter nauseous taste in the mouth; foul tongue, and the appearance of the fæces. The term bilious is also applied, in familiar conversation, to certain kinds of food, meaning thereby, that they have the tendency to produce derangement of the digestive organs, and so cause bilious symptoms. The best treatment for an ordinary attack of bile, as it is called, is first to act on the liver and bowels by means of some gentle mercurial purge, as two or three grains of calomel, or five of blue pill, combined with four grains of compound colocynth pill. This should be followed in four or five hours by a saline draught, such as a dose of senna and salts, which should be repeated till the bowels are freely moved. If there is much nausea, an emetic should be employed in the first instance. Afterwards, the infusion of gentian should be given twice a-day, in doses of a wine glassful at a time, containing twenty grains of carbonate of soda, till the digestive organs have regained their tone.

BINDER. This name is generally given by midwives and nurses to a kind of bandage which is applied to females immediately after delivery. It should produce a firm and regular support to the regions of the abdomen and loins, and for this purpose be of sufficient breadth to cover or envelope all these regions from the pubes to a little above the navel. For directions as to its application, see *Labour*.

BISCUIT. The bread of seamen is prepared from wheaten flour, kneaded into dough with water, rolled out, and divided into biscuits, and baked in an oven till it becomes hard. This

form of bread is, however, now pretty extensively employed on shore as well as at sea, and forms an excellent article of diet for dyspeptics, whose masticatory organs have not suffered by age or disease. Good hard fine biscuit, without any addition to the ingredients above noticed, are likewise, when reground, and made into pap, by the addition of hot water and sugar, or boiled in milk and water and sweetened, a most suitable diet for children labouring under diarrhea.

As to what are called *Fancy Biscuit*, their shape, taste, and constituents are various; some of them are harmless enough, as the common wine biscuit; but the generality are pernicious, as they contain butter, eggs, and other indigestible ingredients.

BISMUTH, or the *Subnitrate of Bismuth*. This metal, or rather this preparation of a semimetal, is composed of a *hydrated oxide of bismuth*, combined with a small portion of nitric acid. It is insoluble in water, and is a whitish inodorous tasteless powder, having absorbent antispasmodic and tonic properties. It has been chiefly employed as a medicine in doses of from ten to twenty grains, twice or thrice a day, in cases of heartburn and indigestion, or more strictly, in cases of acidity of the stomach, attended by indigestion. Those who can find no relief in such cases, from swallowing ten or fifteen grains of the compound powder of columba, in an ounce of cold water an hour before meals, may, after premising an emetic and a purgative, begin by taking ten or fifteen grains of the subnitrate of bismuth, combined with ten grains of columba powder, or any other bitter; as for example, by making a bolus with extract of gentian before meals.

BITES OF MAD DOG. See *Hydrophobia*.

BITTERS. The vegetable bitters most generally used are the camomile, gentian, quassia, and columba. Bitters, when judiciously given, exert a powerful influence in assisting digestion, seemingly by slightly stimulating the stomach, correcting unwholesome food, and increasing the nourishing properties of vegetables.

The preferable method of exhibiting them is extract made into pills, combined with a little rhubarb, or, where acidity exists, combined with oxide of bismuth. They may also be advantageously given in the form of the watery infusion, which is made by infusing one ounce of the root or flowers in 12 ounces of boiling water, adding some orange-peel, and coriander seeds bruised, and about a table spoonful of brandy to prevent it becoming musty; the dose in this form is a small wine glassful twice a day. There is another form which seems to be too frequently preferred, viz. that of spirituous infusion, or tincture, as it is termed; this is sometimes used as a dram, under the imposing title of bitter tonic, or warm stomachic medicine; though the tinctures are useful when combined with other medicines, under the direction of a qualified practitioner, they degenerate into most noxious compounds when indiscriminately used, or rather abused, as they too frequently are.

BITTERSWEET, *Solanum Dulcamara*, or *Moody Night Shade*. This plant was formerly much esteemed for its effects in cutaneous diseases, for which purpose it was used both internally as a medicine, and externally as a lotion; it was also used in ulcers, rheumatic affections, and scrofula. The strength of the decoction is one ounce of the twigs to a quart of boiling water. This is given in doses of a wine glassful thrice a day; when it is to be used externally as a wash, it may be made nearly double that strength; when taken in an over dose, or, what is more likely to happen, when its berries are eaten by children, it is said to cause effects somewhat similar to those in poisoning by belladonna, though less severe; and the same treatment is to be adopted as recommended when treating of that subject.

BITUMENS. The only bitumenous substance used in practice, and recognised by the colleges, is the *Bitumen Petroleum*, or *Barbadoes Tar*. This substance is of the ordinary consistence of tar, has a reddish brown colour, a fetid odour, a bitter acrid taste, a tenacious feel, is insoluble in water and alcohol, partially so in æther; but combines with fixed and essential oils and sulphur.

Barbadoes tar was once esteemed as a sudorific, and in disorders of the chest, although in cases of this kind attended with inflammation, it is certainly improper. It is even yet occasionally prescribed in asthma and coughs, and externally in diseases of the hip-joint, rheumatic pains, and paralytic limbs. The dose internally is from ten to thirty drops, or in the form of pills mixed with powder of elecampane.

BLADDER, Urinary. The bladder in man is situated naturally in that part of the abdomen termed the true pelvis; but when distended, it rises above the pubis, into the hypogastric and umbilical regions, as will be seen by referring to the second figure appended to the article *Abdomen*, where it has been thus brought into view.

The bladder is a cyst composed of three proper coats, and one partial coat; the proper coats are the cellular, muscular, and mucous. The partial is formed by the reflections of the peritoneum; the urine secreted by the kidneys is conveyed into this reservoir by means of two tubes called the ureters, which open near the neck of the bladder in an oblique direction, by which means they prevent the reflux of the urine.

In the male, the neck of the bladder and urethra are surrounded by a substance called the prostate gland.

The bladder is subject to many diseases, which are amongst the most painful that flesh is heir to; these arise, sometimes from inflammation, or organic disease of its coats, from acrimonious state of the urine, or from calculous concretions; sometimes from disease of its excretory canal, (the urethra) causing obstruction to the passage of its contents, or in other words, giving rise to retention of urine from stricture or enlarged prostate; but these, and the means of relieving them, will be fully treated of in the articles *Prostate Gland, Stone, Urethra,* and *Urine.*

BLEEDING. As the term bleeding may mean either the flow of blood from accidental causes, or disease, or the artificial abstraction of blood for the cure of disease, we shall treat of it under these separate heads; the first in the article *Hemorrhage,* and the latter under *Blood-letting.*

BLINDNESS. See *Amaurosis,* and *Eye and its diseases.*

BLISTERS. Blisters or vesicatories, are a class of remedies so called, because when applied to the skin they produce a vesicle, or elevation of the cuticle, containing a clear watery fluid called serum.

Blisters, by producing counter-irritation, or in other words, by producing inflammation of the skin, and effusion of serum from the exhalent vessels, draw a larger quantity of blood than usual towards the surface, and thus from the diseased parts; whilst the quantity of serum separated from the mass of the blood may also have some effect in diminishing the force of the general circulation. In some cases they act as direct stimulants; as for example, when applied in case of coma, for the purpose of rousing the nervous system.

Blisters are composed of mustard, hartshorn, Cayenne and other peppers; but more generally of cantharides, or Spanish flies. These insects, when powdered, are made into a plaster with tallow and wax, taking care not to use too much heat in mixing them, as that destroys their qualities, and then spread on leather or linen, and a little more finely powdered cantharides rubbed over it when it is ready to be applied to the skin. When blisters are wanted to act very rapidly, the aceto-spirituous solution of cantharides may be employed. This is prepared as follows:—

Powdered cantharides,	2 ounces.
Concentrated vinegar,	4½ "
Spirit of wine,	1½ "

Mix in a wide-mouthed bottle, and macerate with gentle heat for five or six days; then strain through flannel with strong pressure, taking care to defend the hands by previously rubbing them with lard.

Another and very powerful mode of producing vesication is by means of boiling water; this is sometimes used in surgery in the neighbourhood of diseased joints. The manner of applying it is by dipping the broad end of a hammer into boiling water for a short time, and then suddenly placing it on the part, when a vesicle is produced; this is to be repeated until a sufficient surface is blistered. This may appear a harsh proceeding, but it is not much more painful than the ordinary blister, is of shorter duration, and very efficacious.

Mode of applying blisters. When the blister is placed on the surface, it should be retained by means of a few slips of adhesive plaster, or a few turns of a roller, and when fully risen, which usually takes place in twelve or fifteen hours, the vesicle should be opened at the most dependent corner with a sharp pair of scissors, taking care not to remove the cuticle along with the blister, as that may impede its healing. When the fluid has escaped, the cuticle should be laid smooth, and a piece of soft linen rag spread with simple ointment applied over it. When we want to establish an issue, a portion of the cuticle is to be removed at the centre of the blistered surface, and the part dressed with basilicon or savine ointment, whilst the remainder is treated as formerly directed.

As blisters are used in such a variety of cases, and as the necessity as well as the proper period for applying them will be discussed when treating of those diseases where they are indicated, it would be out of place to enumerate them here.

Cases where fly blisters are hurtful. Their use is dangerous in very young children, and in those of dropsical habits, as in them they sometimes give rise to gangrene. In very irritable constitutions, or where there is any tendency to disease of the urinary organs, their use is also contra-indicated; as in the former class of patients they may give rise to increased irritability, and in the latter they almost to a certainty will aggravate the disease of the urinary organs; indeed one of the peculiar effects of cantharides is to cause strangury, and even bloody urine sometimes, in those cases where there is no pre-existing disease of the bladder; and the best method of preventing this unpleasant effect is to cause the patient to drink freely of barley or gum water, containing a small quantity of carbonate of soda, or acetate of potash. Sometimes, also, blisters produce inflammation of the erysipelatous or spreading character, occasionally ending in extensive ulceration, or even gangrene; in this case we must have recourse to various remedies according to the appearance of the sore, and medical aid should be procured if possible during the inflammatory stage; bread and water poultices should be applied to the part, followed by simple dressing; and when the sore becomes sluggish, we require to apply basilicon ointment and other stimulating substances. In fact we must conduct the case on

the general principles laid down for the treatment of ulcers.

BLOOD is the fluid which circulates in the heart, arteries and veins; it has a saline taste, and peculiar smell. That which is drawn from a vein, is of a dark purple or violet colour, whilst that from an artery is of a bright crimson. It is one of the most important fluids in the animal economy. By it the various parts of the body are nourished, and from it the various secretions are formed. The difference between venous and arterial blood has been thus described by Magendie:—

Venous.	*Arterial.*
Black Red.	Vermillion Red.
Weak Odour.	Strong Odour.
Temperature, 101·75° Fah.	Temperature, 104° Fah.
Capacity for Caloric 852⁷.	Capacity for Caloric, 839.
Specific Gravity, 1051⁸.	Specific Gravity, 1049.
Less Coagulable.	More Coagulable.
More Serum.	Less Serum.

When recently drawn, blood has a thickish consistence and an unctuous feel. After it has stood for some time, it undergoes spontaneous changes. It gradually separates into two distinct parts,—a thin yellowish fluid called serum, and a thick red mass called crassamentum, or clot; the proportions of these vary in different individuals, and even in the same at different times. In general the latter is three times as much as the former.

Serum is of a yellowish-green colour, and has the taste, feel, and peculiar odour of blood. It is found on analysis to contain,

Water,	900·
Albumen,	86·8
Muco-extractive matter,	4·0
Muriate of Potash and Soda,	6·6
Sub-carbonate of Soda,	1·65
Sulphate of Potash,	0·35
Phosphates of Zinc, Iron, and Magnesia,	0·60
	1000 00

From containing the free sub-carbonate of soda, it changes the vegetable blues to green.

The clot, or crassamentum, is thick like jelly, and when the blood has been taken from a vein, it is of a purple colour, but by exposure to the air, gradually becomes a bright red.

By the action of water it is resolved into its component parts—a red soluble matter, and a white elastic substance which is insoluble. The first is the colouring matter of the blood and a little albumen, the latter is pure fibrine.

The colouring matter, on analysis by heat, yields, in 100 parts of its ashes,

Oxide of Iron,	5·50
Phosphates of Lime and Magnesia,	8·5
Pure Lime,	17·5
Carbonic Acid,	19·0
	100·0

Fibrine, on analysis, contains, in 100 parts,

Carbon,	53·360
Oxygen,	19.685
Hydrogen,	7·021
Azote,	9·934
	100·000

The difference in colour between venous and arterial blood has been already noticed. If it be examined in its course from the heart to the lungs, it will be found of a dark colour, but as it passes from them back to the left side of the heart bright red; so that it is evident that the important change, termed arterialization, takes place during respiration; but of this we will speak more particularly in its proper place.

When blood is drawn in inflammation, we find that it presents, on standing, a layer of tough yellowish substance, varying in thickness. This is what we term the buffy coat; and this, when contracted and depressed in the centre, is said to be cupped.

There has been much controversy as to the quantity of blood contained in the body relatively to the solids.

Haller has stated it as constituting about one-fifth the weight of the adult body, the proportion of fluid being greater in youth, and diminishing as age advances; and of the whole quantity of blood it is supposed that three-fourths or rather more, are in the venous system, and one-fourth only in the arterial. Sir Astley Cooper states that the quantity of blood which can be drawn from an animal before it dies, is about one pound to sixteen of the solids. See *Circulation* and *Respiration*.

BLOOD-LETTING, or the abstraction of blood for the cure of disease, is effected in various ways, as by venesection or opening a vein, arteriotomy, or opening an artery, by scarification, cupping, and leeches.

Blood-letting is one of the most powerful antiphlogistic remedies, and its beneficial effects seem to result from three different causes. First, by producing diminution of nervous power, which is proved by the fainting and sickness which attend the loss of blood. Secondly, by directly lessening the quantity of the circulating fluid; and, in the third place, by facilitating the re-establishment of the various secretions. The first indication for abstracting blood is said to be a hard pulse. In this state of pulse the diameter of the artery may be diminished; yet its action is exceedingly strong, each pulsation feeling like the vibration of a wire. The pulse, however, is not always to be depended on; for, in cases of inflammation of the bowels, the contrary is the case, for the pulse is quick and small; but, as a general rule, the principle above mentioned holds good. A buffy and cupped state of the blood is also said to warrant a repetition of blood-letting; but this is very fallacious, as it occurs in pregnancy, and also in other states of the constitution, where no inflammatory action is present even in debilitated patients. The proper cases and period for blood-letting will be discussed in treating of the various diseases where it is had recourse to. But before proceeding to explain the methods prac-

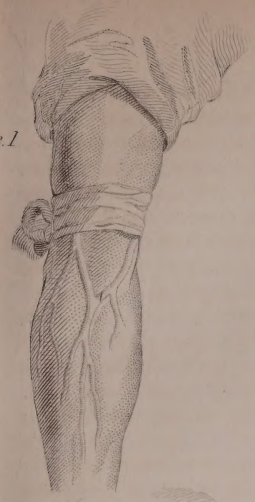


Fig. 3

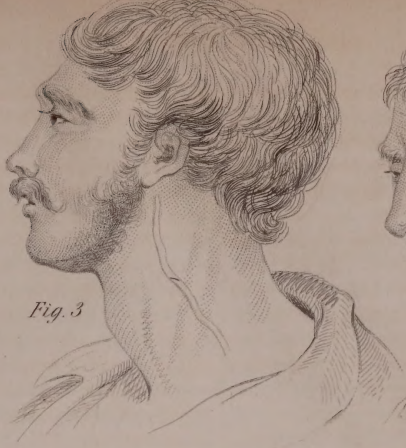


Fig. 4

Fig. 2

Fig. 5

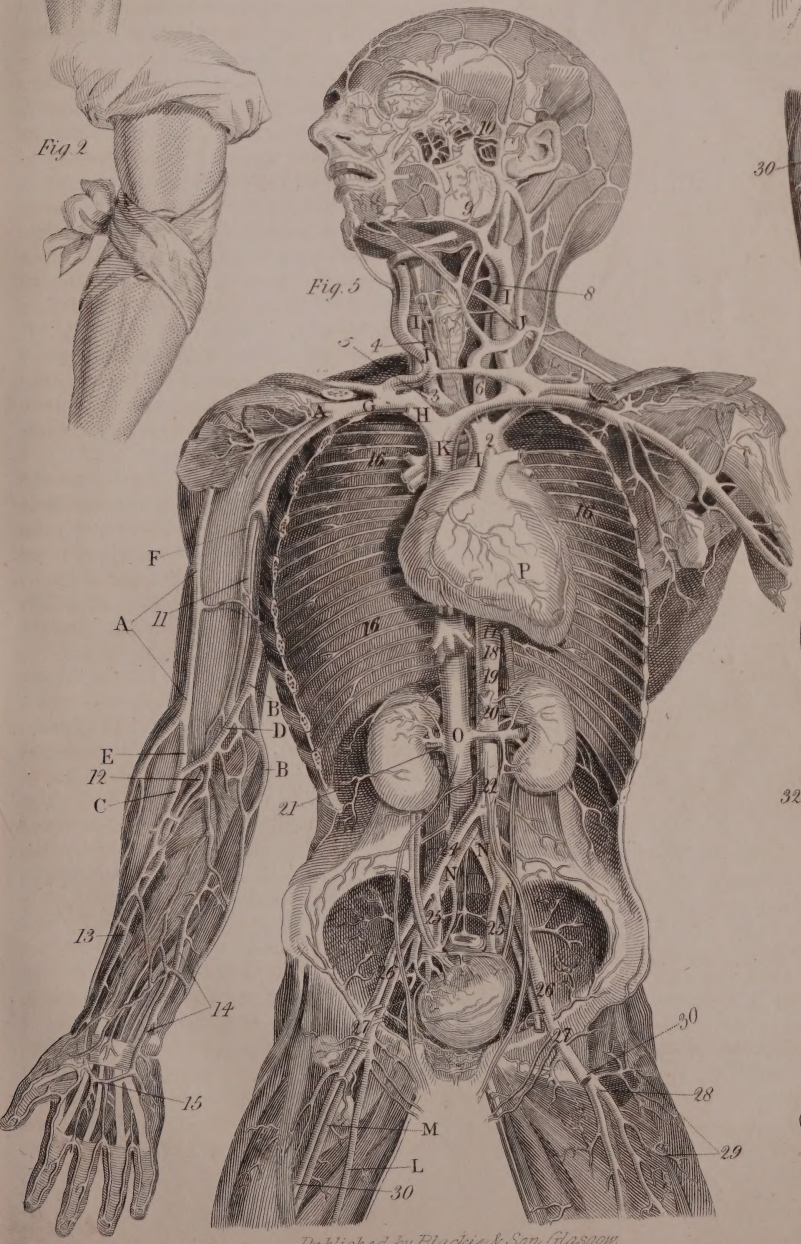


Fig. 5

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tised for withdrawing it, we would impress on our readers the necessity for great caution in resorting to it, for even with professional men it often forms a routine of practice exceedingly injurious. Thus we frequently hear of blood being abstracted in cases of severe injury at the commencement, and before reaction of the system has taken place, whereby the patient is deprived of any chance he may have had of rallying; and it is often resorted to also in diseases where it is exceedingly improper, particularly in some kinds of fever.

As venesection is the most common method of performing blood-letting, and almost the only one an unprofessional person should adopt, we will commence by describing the mode of performing it, and then treat briefly of the others in succession.

In venesection or phlebotomy, the veins most generally opened are those at the bend of the elbow; and in some cases the external jugular, or some of the veins of the foot. Of these the veins at the elbow are to be preferred by the domestic practitioner; and there are some points of importance to be observed in choosing a proper vein. In the first place, we should prefer one towards the outer side of the elbow, as the artery of the arm runs close along the inner side of the tendon of the biceps muscle, which tendon can always be felt, by bidding the patient bend the fore-arm, and so render it tense; and the pulsation of the artery can also be distinguished by the finger; and this last mark we should always feel for, in whatever vein we are about to bleed, as sometimes the artery divides high up in the arm, and one of its principal divisions there frequently takes an irregular course; but by attending to the foregoing precaution, we will be enabled to ascertain whether such is the case or not. We should also choose a vein that does not roll under the skin, as it is easier to strike, and less likely to have the flow of blood interrupted by the skin during the operation; a ligature is then to be placed on the course of the vein above, between it and the heart, so as to prevent the return of blood through, and so make it rise. The patient's arm being held steady, the vessel is fixed by the thumb of the one hand, whilst with the lancet held loosely between the thumb and fore-finger of the other, the blade being opened at a right angle with the handle, the operator makes an opening into the vessel. The puncture should be of sufficient depth to enter the vein, and then the edge of the lancet should be carried forward more than the point, for the purpose of making a larger opening in the skin than in the vessel. The best line of incision is obliquely across the vein, taking care not to transfix it. The thumb is removed from off the vein as soon as a utensil is placed to receive the blood, and then the arm is to be kept in the same position as during the operation, so that the opening in the vein and skin may correspond.

The flow of blood may become impeded, either by the ligature being too tight, so as to prevent the flow of blood in the arteries, from the vein rolling beneath the skin, from an imperfect orifice, or from faintness coming on. In the first of these cases, the ligature should be relaxed; in the second the position of the arm altered, and the skin rendered tense; and both here and in the next case, any coagulum should be gently washed away with soft rag dipt in warm water. When faintness comes on, the patient should be laid in the recumbent position, stimulants applied to the nostrils, and a little water given to drink. When the superficial veins are emptied, the blood may be directed to the surface, by making the patient move his fingers round some solid substance grasped in the hand. When sufficient blood has been taken, the ligature is removed, the thumb placed firmly over the wound, the arm washed, and then a compress of linen rag placed over the orifice, and secured by ribbon or cotton roller, applied in what is called the figure 8, crossing twice over the compress; but this will be better understood by referring to the plate, in which we have endeavoured, by diagrams, to illustrate the directions we have now given. The arm may then be placed in a sling for a few hours, and after thirty-six hours the bandage may be entirely removed, and a bit of rag lightly applied over the wound, which is usually found closed.

There are various unpleasant circumstances which sometimes follow this apparently trifling operation. These are, first, puncture of the artery, the treatment of which has been already very fully described in our article on *Aneurism;* inflammation and abscess round the opening sometimes occur, which must be treated by fomentation, poultice, rest, and free evacuation of the matter. Sometimes a very formidable disease, termed phlebitis, or inflammation of the vein, occurs, and demands immediate professional assistance; it will be found more fully described under its proper head. A small tumour, called thrombus, formed by the infiltration of blood into the cellular tissue, sometimes occurs in venesection, but is only troublesome in preventing the flow of blood, and requires no treatment, as it soon disappears by absorption.

The consequences of punctures of tendons and nerves used to be held in great dread; but bad effects from these causes are of very rare occurrence.

Arteriotomy is generally performed, indeed almost solely in the temporal artery, and for this purpose its anterior branch is chosen, as it can be both easily seen and felt pulsating in most cases when it is to be opened. The best plan is to place the fingers over the distal end of the vessel, or the part further from its trunk,

than where we are going to open it. The skin being made tense, an incision is made with the shoulder of the lancet down to the vessel, of about half an inch in extent, and then the vessel is to be opened with its point, care being taken not to cut it entirely across, as its ends would retract, and the flow of blood would very likely cease, or be trifling. When a sufficiency has been got, a graduated compress is to be placed over the wound, and secured with a double headed roller, by what is termed the twisted temporal bandage. See *Plate*, Fig. 4.

Cupping consists in making numerous scarifications, and then exhausting the air from a glass by means of the spirit lamp, and applying it, when so exhausted, over the scarifications. This must be done rapidly, when the blood flows freely from the wounds into the vacuum so produced; but to do this dexterously and well, requires more practice than can be expected, either from nonprofessional persons, or from the generality of practitioners; and accordingly we find that it forms in large towns a distinct profession, those who practise it exclusively being termed cuppers.

Scarifications are incisions of greater or less extent, according to circumstances, made in the neighbourhood of inflamed parts, by which the vessels are divided, and blood abstracted at the same time.

Regarding the abstraction of blood by leeches, that will be found fully treated of in the article on those animals.

BLOOD-ROOT, or *Sanguinaria Canadensis*. The root of this plant, the part used in medicine, is slightly escharotic, having a bitter acrid taste, and is composed of gum resin and a saponacious extractive matter. Its action on the human body, when taken in small doses, is expectorant, tonic and stimulant. It requires, however, great caution in its use in larger doses, as it possesses somewhat similar properties as foxglove in diminishing the pulse, and is, moreover, an acrid narcotic, and in the dose of a scruple, proves emetic. Endowed with these properties, it has been highly recommended in inflammatory affections of the lungs, in the stage of what is called congestion, and in the commencement of pulmonary consumption, in affections of the liver, jaundice, hooping cough, inflammatory sore throat, and in all those diseases in which it is necessary to moderate the force of the circulation. As an expectorant, stimulant, and tonic, it is given in doses of from one to two grains of the powder every five or six hours; and as an emetic, from eight grains to a scruple, infused in warm water. The States' pharmacopeia gives place to a tincture which is made by macerating two ounces of the bruised root, in a pint of proof spirit, for ten days, and filtering. This tincture contains the virtues of the root, and is used in the same cases as the powder, in doses of from ten drops to 100, which latter dose will generally act as an emetic. When the proper management of this root is more accurately known in these kingdoms, it bids fair to be one of the most valuable articles of the materia medica, possessing some of the best properties of foxglove, without that danger being attached to its use as there is in the case of the digitalis and its preparations.

BLOOD-VESSELS, or those vessels which carry the blood in the human body, are, 1st, the arteries, which convey the blood from the heart to the various parts of the body, for the purposes of nutrition and secretion; 2d, the veins, which return the blood to the heart after having been so distributed; 3d, a set of minute vessels, intermediate between those two great systems, named capillaries.

The peculiarities of the arterial system have been already mentioned under the article *Artery*, and the venous system will also be described under its proper head. What we at present purpose is to present such a view of the different vessels in the human body to our readers, as may give them some idea of the relative position of the principal vessels, both veins and arteries, to each other and to the neighbouring parts, and may thus enable them to understand our descriptions when treating of wounds, bleeding, &c. This purpose, we trust, will be effected by our readers carefully perusing the following table of the vessels in conjunction with the plate to which it refers.

ARTERIAL SYSTEM.

1	The ascending aorta, or great artery, which arises from the left side of the heart.
2	Arch of the aorta.
3	Arteria innominata, dividing into (4,) right carotid, and right sub-clavian, (5.)
6	Left carotid artery.
7	Left sub-clavian.
8	Arteries to the thyroid gland.
9	Arteries of face.
10	Temporal artery.
11 11	The continuation of the sub-clavian artery, named axillary, and its continuation in the uppper arm, named the brachial; in the arm it lies along the inner edge of the biceps muscle.
12	Same vessel at the bend of the arm, showing its relative position to the superficial veins previous to its division into 13, the radial, and 14, the ulnar arteries.
15	The arterial arch, formed in the palm of the hand by the junction of the ulnar with a branch of the radial, and from this arch the branches proceed to the fingers.
16	Intercostal arteries, which come off from the thoracic portion of the descending aorta. This part of the aorta is almost entirely hid in the plate by the position of the heart.
17	The abdominal aorta, giving off the following branches:
18	The phrenic arteries, which ascend to the diaphragm.
19	The cœliac axis, which subdivides into three branches, one for the liver, one for the stomach, and one for the spleen.
20	Superior mesenteric trunk, supplying the intestines.
21 21	Arteries of the kidneys.
22 22	Spermatic arteries.
23	Inferior mesenteric trunk, supplying the lower part of the intestines.
	The abdominal aorta then divides into the two common iliac arteries, marked 24 24, and these again subdivide into the internal iliacs 25 25, and the external iliacs, 26 26.
27	The continuation of the external iliac artery in the thigh, named here the common femoral artery.
28	Deep division of the femoral artery, giving off
29	Articular and muscular branches.
30	Superficial femoral artery.
31	Articular arteries of knee joint.

32 Anterior tibial artery.
33 Arteries of foot.

VENOUS SYSTEM.

As the veins return the blood to the right side of the heart, they are described as passing from branches to larger trunks, which again terminate either in the superior or inferior vena cava, which enters the right auricle.

VEINS OF UPPER EXTREMITY, AND HEAD AND NECK.

a a Cephalic vein.
b b Basilic vein.
c Median vein, dividing at the bend of the elbow into *d*, the median basilic, and *e* the median cephalic. The latter is the proper vein to open in bleeding, as it is removed from the brachial artery (12) when that vessel is in its natural situation.
f f Two deep-seated veins which accompany the brachial artery, and are named its satellite veins.
g g The axillary veins.
g' g' Continuations of the same, which receive the name of sub-clavian.
h h Venæ innominatæ, formed by the junction of the sub-clavian veins with the internal jugular veins of each side, which are marked *i i*.
i i External jugular.
k Vena cava, superior, which returns the blood from the head and superior extremities to the heart.

VEINS OF LOWER EXTREMITIES, LOWER PART OF TRUNK.

l Internal saphena vein, which arises on the back of foot, and ascends superficially along the inside of leg and thigh, till it reaches the groin, where it joins
m The femoral vein.
n n n n The two common iliac veins, forming, by their junction, the inferior vena cava *o*, which receives the blood returned by the different veins from the lower part of body, and then empties itself into the right auricle of the heart.

BLUE DISEASE, OR CYANOSIS. This disease, in which the skin is of a blue colour, is generally dependent upon an unnatural condition of the heart. This unnatural condition consists in the foramen ovale (which is naturally open in the fœtus, and which in it transmits the blood directly from the right to the left side of the heart) remaining pervious after birth, allowing the admixture of the venous with the arterial blood, thus altering its colour, and consequently affecting that of the tissue in which it circulates. Although in such cases the child may survive for some time, still it must be evident, from what has been said, that it is a disease quite beyond the reach of medicine. A blueish, or livid, colour of the skin is also produced sometimes by the use of the nitrate of silver internally.

BLUE PILL. See *Mercury*.

BOIL. A boil is a small tumour of a conical shape, elevated above the surface of the body. Its base is hard, whilst its apex is soft, and of a whitish colour, and exceedingly painful. The pain in boils is generally severe and burning, and hence the name. Boils generally occur in persons of unhealthy constitutions, in those of intemperate habits, and they often arise from, or at least follow, disease of the digestive organs. They vary considerably as to their size.

Treatment. Suppuration is to be hastened by poultices and fomentation; afterwards a free crucial incision should be made into the tumour, and the matter, together with the dead cellular tissue, or core, as it is called, must be forcibly squeezed out. If the core is adherent, it must be destroyed by caustic, as it otherwise tends to keep up irritation.

Attention must be paid to the digestive organs. If these are much deranged, an emetic may be first given, followed by some gentle purgative. Afterwards, Plummer's pills, followed by small doses of Epsom salts, may be given occasionally. Anodynes are sometimes necessary when the constitutional irritation is very great.

BOLUS, is a term used in pharmacy, to denote a dose of any medicine when formed into a mass, larger than a pill, and somewhat softer in consistence, so as to be easily swallowed. This form of exhibiting medicine is principally had recourse to when prescribing light dry powders, where the form of a pill cannot be conveniently used.

BONE. The osseous system is the hardest part of animal bodies. From its solidity it forms as it were the frame work, which gives support and form to the superimposed soft structures, and affords attachments to muscles, by which the different motions are performed, and assists in forming the walls of cavities, to protect the important contained organs.

Bones are divided into long, short, flat, and irregular. The long bones, generally speaking, are placed in those parts intended for locomotion, and represent so many levers, to be acted on by the muscles. Each long bone presents a shaft and two extremities. The shaft, or cylindrical portion, is hollow, and contains the medulla, or marrow, which is enclosed in its cancellated tissue. The short bones are usually placed where solidity is requisite, combined with free motion, as, for example, in the wrist and vertebral column. The flat bones, for the most part, form the walls of cavities. Such are the bones of the skull, the sternum, or breast-bone, and those of the pelvis. The irregular bones, as their name implies, are those which do not enter into any of the foregoing classes.

Bones are marked by elevations, which are termed processes, and serve either for points of attachment to muscles or ligaments, or for articulation with corresponding depressions in other bones. They are also marked by depressions, caused either by the action of muscles, the impressions of contained organs, or for articulation; and they present holes for the transmission of blood-vessels to nourish them.

The structure of bone is fibrous, the fibres being in some parts placed very closely together, thus forming what is termed the dense, or compact, shell of the bone; but in other parts the fibres are arranged so as to form cells; this is the cancellated tissue: and on the relative proportions of these two component parts depends the spongy appearance of some bones, and the density and solidity of others.

In the shaft of long bones as already stated, the cancellated tissue occupies the medullary canal, and it is very abundant in their extremi-

ties. In the flat bones it is placed between the two layers of compact substance, and is termed the diploe.

The chemical composition has been found, on analysis, to be as follows, in 100 parts:

Animal matter,	51·
Phosphate of Lime,	37·7
Carbonate of Lime,	10·
Phosphate of Magnesia,	1·3
	100

By using heat the animal matter can be driven off, leaving the earthy parts of the bone unaltered in shape, but exceeding light and brittle. In like manner the earthy matter may be destroyed by maceration in acid, when the animal part of the bone is left of its natural shape, but quite soft and pliable, like cartilage. These two opposite states of bone sometimes exist from disease, and will be afterwards treated of when speaking of Rickets.

In the fœtus the bones are originally cartilaginous; but this gradually becomes more vascular, earthy matter is deposited on one or more points (point of ossification), and thence proceeds until ossification is completed.

The various bones forming the human skeleton will be found described under that head; and the injuries and diseases to which the osseous system is liable, will be treated of, the former under *Fracture* and *Dislocation*, the latter under *Caries*, *Necrosis*, and *Rickets*.

BORAX, or the *Borate of Soda*, known also by the name of the *Sub-borate of Soda*. Borax is found in an impure state in Thibet and Persia. It is inodorous, and has a somewhat alkaline cool taste, and contains an excess of soda; is slightly efflorescent, and soluble in twelve parts of cold water. The constituents are soda, boracic, and water of crystallization. Borax is usually sold in the shops in the form of crystals, or in powder; the former is generally preferred by artists, as it enters into the composition of solders. Borax is not very generally used internally, although of late it has been acquiring more general notice. Its principal use has been confined to that of a gargle, apthæ of the mouth, so frequent in children, or as a common gargle in cases of severe salivation. It is, however, regarded as diuretic and emenagogue; and a scruple, mixed with one dram of cream of tartar, will operate as freely as three drams of cream of tartar alone.

Common Borax Gargle.

Powdered Borax, one dram.
Water, one pint—Mix.

Honey of Borax.

Powder of Borax, one dram.
Honey, one ounce.
Rose or common Water, two ounces.

Rub the borax and honey together in a Wedgewood mortar, and gradually add the water, continuing the rubbing till the mixture is formed.

In all cases the rose water is to be preferred. The common gargle is to be used in the ordinary way; and the honied gargle is to be applied to the affected parts by a feather, or fine camel hair brush, as in this form it is seldom employed, but in the apthæ or thrush in children, and is a really useful application. See *Thrush*.

BOTANY. The science of botany has for its object the investigation of the structure and functions of the various plants which form the vegetable kingdom, so as to classify and arrange the numerous individuals which compose it into groups or classes. The various objects of botany which are used for medicinal purposes, or which are in any way connected with medicine, will be found described throughout this work under their respective heads.

BOWELS, Inflammation of, *Enteritis*. There are two varieties of this disease, the acute and chronic. The symptoms of acute inflammation of the bowels are acute twisting pains in the abdomen, aggravated by pressure, coughing, or breathing; dry hot skin, frequent pulse, tension of the belly, obstinate constipation, though sometimes there is diarrhea. If the inflammation be in the upper part of the intestines, there is vomiting of dark bilious matter; but if it be situated in the lower intestine, there is straining and frequent desire to go to stool. The tongue is either loaded and foul, with red edges and tip, or red and glazed throughout, and sometimes covered with apthous sores, and, as the disease advances, it often becomes covered with a dark crust; the thirst is urgent, and the pain is increased by cold drinks. The state of the pulse deserves particular notice. It is small and frequent; and as it differs from the wiry hard pulse generally accompanying inflammatory action, it might be mistaken for a symptom of weakness, and improper treatment adopted.

Inflammation of the bowels is distinguished from colic by the pain in the former being continued, instead of occurring paroxysms, and by its being aggravated, instead of being relieved by pressure, as it is in colic.

The *treatment* of enteritis requires to be exceedingly active. General bleeding must be had recourse to without delay, and to the extent of producing fainting. Leeches are to be applied to the abdomen, or to the verge of the anus; and applications of hot turpentine, mustard, or fly-blisters, over the pained part. The bowels must next be acted on by administering a clyster; at the same time, a pill composed of eight grains of calomel, combined with one grain of opium, may be given by the mouth; if there is not much vomiting, one grain of ipecacuanha will be found a useful addition to the above, as it assists in producing gentle perspiration, and, together with the opium, in allaying irritation, and so preventing reaction; but large

opiates are inadmissible, until after bleeding and free motion of the bowels. The pill should be followed in about two hours by half an ounce of castor oil, either beat up with the white of an egg, or mixed with a little thick barley water; of course the doses here mentioned are for the adult, and must be diminished in the case of children according to their age. If there be much vomiting, small quantities of aerated soda water (say half an ale glassful at a time, containing eight or ten grains of carbonate of soda, previously dissolved in a little water in the bottom of the glass) will be found useful in allaying it. The warm bath is a powerful auxiliary to the above remedies; but care must be taken not to expose the patient to cold after it. Drinks of any kind should be given sparingly, and very small quantities at a time. The best is thin gum water. If the mouth be painful and raw, a gargle of borax may be used. All medicine which irritate the mucous membrane of the bowels must be carefully avoided; as for example, antimonials, drastic purgatives, vegetable acids, &c.

Before leaving the treatment, we would again inculcate the necessity for free and early bloodletting, both general and local, as the only chance of safety in this disease.

Prognosis. The symptoms are favourable when the pain begins to shift, and becomes less after bleeding; when the extreme tenderness, or pressure, is diminished; when a natural perspiration is produced; when the bowels have been freely opened, and the evacuations more natural in appearance; cessation of the vomiting, and the pulse becoming less frequent. The unfavourable symptoms are shiverings, followed by throbbing and dull pain in any part of the bowels, frequent fœtid stools, of a reddish watery appearance, clammy sweat, sudden cessation of all pain, with hiccup, sinking irregular pulse, and sharpness of the features.

In all cases where the vomiting and constipation of the bowels are obstinate, examination should be made to ascertain whether or not any rupture exists, as these symptoms may be caused by that disease.

Chronic Inflammation of the Bowels. This occurs either as a consequence of the acute form, or it may supervene gradually, the symptoms being much milder, but, in their general characters, resembling the acute. There is frequent pulse, hot, dry, and harsh skin, particularly in the palms of the hands, which are generally of a burning heat. Sense of uneasiness and fullness of abdomen, aggravated by taking food or liquids; loss of appetite; constipation of bowels, with occasional diarrhea, the evacuations then being unnatural in appearance, and excessively offensive; tongue loaded with red edges, or red and glazed throughout; there is frequently, also, vomiting after meals.

The *treatment* consists in local depletion, or, where it can be borne, general blood-letting, followed by blisters, tartar emetic ointment, or other counter-irritants to the surface; bland dry diet in small quantities; mucilaginous drinks; and the occasional use of gentle laxatives and the warm bath.

BRAIN. The brain is that large mass of nervous substance contained within the cranium. It is the centre of the nervous system, and to it the effects produced by external objects on the nerves are conveyed, causing what are termed sensations, as well as those peculiar sensations produced on certain nerves, as the optic, auditory, &c., which have been termed the senses.

The brain is protected by many coverings. These are the hair, scalp, and cranial bones, and more immediately by three membranes; one fibrous, termed the dura mater, one serous, the arachnoid, and one vascular and very fine, which dips into its various inequalities, termed the pia mater. The great nervous mass contained within the cranium has been divided into the cerebrum or proper brain, the cerebellum or little brain, placed below and behind it, and the medulla oblongata, which is the commencement of the medulla spinalis or spinal marrow; all these parts, however, are intimately connected to each other.

Few parts of the human body are more complex in their structure than the brain; and as it would be impossible to convey any intelligible description of it to the general reader in a work of this kind, we must refer to the various treatises on this subject for further information, whilst we proceed to describe what is more akin to the intention of the present work, viz. the injuries and diseases to which the brain is liable.

BRAIN, Compression of. This may be caused either by effused blood, purulent matter, or serum, or by a depressed portion of bone; but from whatever cause it proceeds, its symptoms are the same. The patient lies insensible, with stertorous or laborious breathing, the pupils of the eyes are dilated and insensible to the stimulus of light, the pulse is slow and labouring, the fæces are passed involuntary, and there is paralysis of the bladder.

Compression from effused blood frequently follows concussion on reaction taking place, the blood being then poured out from some lacerated vessel. In such cases the blood may be situated either at the point where the injury was inflicted, or at a point diametrically opposite to it; it may be beneath the bone, between it and the dura mater, or between the arachnoid and pia mater, or in the substance of the brain itself. Owing to this uncertainty as to where the effused blood is to be found, little or nothing can be done in cases of compression from this cause, except in the way of preventing the effusion, if possible, when treating cases of con-

cussion, or, by the exhibition of small doses of calomel, and antiphlogistic treatment, to cause absorption, if possible, of the effused fluid.

Compression from abscess, or effused pus, is generally the result either of inflammation of the dura mater, arising from injuries of the bone or the scalp, or from inflammation of the cerebral substance. The former cause is perhaps the most frequent, and the only one where medical aid can be of much service. It generally occurs some days after the injury, and is marked by rigors, succeeded by fever, unhealthy action in the wound of the scalp, if one exist, or, where the scalp is whole, by a puffy tumour. Sometimes it is ushered in by great excitement, but more generally by dull weight and pain in the head, and lethargic symptoms, terminating in those of compression. Where the existence of the external symptoms point out the seat of the purulent collection, the operation of trepan, or perforation of the bone (which will be generally found dead) must be had recourse to for the purpose of evacuating the matter. But in cases where, as in that of effused blood, the situation of the pus is uncertain, of course no one would ever propose such a measure. All that can, then, be effected, is to promote absorption by the means already pointed out, and the application of blisters, setons, and other counter-irritants; but little good can be expected from any remedy in such cases, where, as we have said, the cerebral substance itself is affected.

Compression from depressed bone the result of fracture, is dangerous according to the depth of the depression, the injury inflicted on the dura mater, and whether the fracture is simple or compound. The most dangerous fractures are those extending to the base of the skull, causing compression of the important parts at the base of the brain, either by the fractured bones or effused blood. This accident generally occurs from falls upon the top of the head, or by falls from a great height, the lower part of the body coming in contact with the ground whilst the head is still in motion, the force being thereby transmitted by the vertebral column to the base of the skull, fracturing it extensively; the symptoms of compression are immediate, and blood flows freely from the ears, nose, and mouth.

Next in danger are those fractures termed punctured, such as are inflicted with a sharp pointed weapon, as a pike or pitch-fork, or by a sharp pointed piece of stone forcibly projected, as in blasting rocks. These are often apparently trifling at first, as the wound in the scalp, and the fracture of the outer table of the bone, is small; but then the inner, or glassy table, which, as its name implies, is very brittle, is broken up extensively in a star-like manner, the spiculæ being thrown inwards, so as to irritate and lacerate the dura mater or by becoming necrosed or dead, they give rise to inflammation and formation of matter. Such cases imperiously demand the early performance of the operation of trepan, to enable us to remove the sharp and loose spiculæ, and subsequently strict antiphlogistic treatment. In extensive fracture with depression we also require to trepan, to enable us to introduce instruments to elevate the depressed bone; but we should not resort to that operation unless the depth of the depression is considerable, and the symptoms of compression urgent. In cases where the dura mater is wounded, the danger is very great from the inflammatory action which generally ensues, as well as from a fungous protrusion which frequently follows accidents of that kind, termed fungus cerebri, which admits of little treatment, and generally terminates fatally. The treatment of inflammation of the brain and its membranes, will be found under the article on that subject.

BRAIN, Concussion of. The symptoms of concussion, or shock, of the brain from external injuries, differ somewhat from those of compression. The insensibility is not so complete; the pupils are often contracted, or there may be squinting; the breathing is more regular; the pulse at the first is weak, sometimes almost imperceptible; the surface cold; there is generally vomiting, involuntary passage from the bowels, and paralysis of the bladder, causing retention of urine. The pulse then gradually rises, and is easily excited, so as often to increase ten or fifteen beats in the minute on moving the patient. The surface of the body becomes warm, and the face flushed, the pulse full and bounding, and there is cerebral excitement and delirium if proper measures are not taken to prevent immoderate reaction.

The indications of treatment are, 1st, to rouse the system to reaction; 2d, to moderate that state when it occurs; 3d, to allay inflammation should it occur. The first indication is fulfilled by applying sinapisms to the pit of the stomach and feet, administering a turpentine injection, and applying heat to the surface; bleeding should never be resorted to until reaction has fairly set in, as otherwise the patient may sink from the depletion.

When reaction does occur, the pulse becomes full and more regular, and the surface warm, the patient is more sensible, and generally complains of pain in the head, and thirst; it is now that bleeding is useful to prevent immoderate reaction and subsequent inflammation, and, by depressing the force of the circulation, to prevent also the effusion of blood from lacerated vessels, which is apt to occur when the circulation becomes vigorous. The bleeding should be followed by purgatives, such as a dose of calomel, followed by saline medicines and antimonial diaphoretics, to restore the perspiration. We next proceed to describe the symptoms

arising from inflammation of the brain or its membranes, and the treatment required in such cases.

BRAIN, Inflammation of. This disease is one of the most dangerous results of injuries of the head; but it also arises from many other causes besides external injury. The principal are: violent mental emotions, exposure to cold, or to the rays of the sun in hot climates, and from excess in spirituous liquors. The symptoms are those of general fever, followed by weight and pain in the head, wildness of expression, and peculiar brightness of the eye, hard wiry pulse, suppression of the various secretions, and furious delirium or phrenzy.

The treatment must be active. It consists in bleeding freely, either from the temporal artery or from the veins of the arm, or both; the application of cold to the head, purgative and antimonial medicines, blisters to the neck, and the warm bath; and in cases where we suspect effusion, small doses of calomel, frequently repeated, may be given to promote the absorption of the effusion. In cases following accidents, the previous habits of the patient must be kept in mind, for the intemperate are subject to the disease termed delirium tremens, requiring a very different treatment, which supervenes on even slight injuries, and simulates somewhat the appearances of the delirium attendant on inflammation. See *Delirium Tremens*.

In all cases of injury or disease of this important organ, medical aid should be early procured; and it is only in hopes of giving some useful hints to those who are far removed from medical assistance, that we have entered so fully on this subject.

BRANDY. A spirit distilled from wine, or the fermented juice of grapes. It has a more pleasant flavour than spirit obtained from malt made from grain of any description, and is, therefore, to be preferred for the preparation of tinctures for internal use. It is originally not so clear as malt spirit, having a milky appearance, owing to a portion of essential oil that rises in distillation; but, by keeping, it loses this milky hue, and its dark colour is either derived from the wood of the cask in which it is kept, or otherwise imparted by colouring ingredients. It is, however, in no respect superior to malt spirit of the same strength, for the preparation of such tinctures as are used externally, as the tincture of soap, &c., or for those where flavour is not an object, as assafœtida, galbanum, &c., and indeed it is seldom used by the chemist or druggist, and our rectified spirit is only malt spirit submitted to repeated distillations.

Brandy, when taken to excess, is equally pernicious, as other ardent spirits; but it is very foolish to imagine that either rum or gin are more wholesome, because the former is believed to be more balsamic, and the latter more diuretic; for all three, when drank daily, even in small quantities, seldom or never fail in destroying the digestive powers, and in inducing premature old age.

British brandy is made by mixing a small portion of newly distilled sweet spirit of nitre, with rectified malt spirit, and colouring ingredients; but there is a patent brandy distilled from malt, raisins, &c., little inferior to the foreign, and even as well adapted for tinctures and other medical purposes.

BREAD. There are a great variety of substances which enter into the composition of bread, and it is likewise prepared by very different processes; and hence it is common to speak of wheaten, barley, oat, rye, and other breads, and likewise of leavened and unleavened bread. In this country, and in most parts of Europe, and the European colonies, as well as in the United States, and other quarters of North and South America, wheaten bread, prepared by fermentation, with yeast or barm, and into the composition of which nothing but flour, yeast, and salt enters, is now most generally regarded as that bread which is the staff of life.

Except in wet rainy seasons, when not only wheat, but other grain, frequently assumes a half malted character, bread, in this country, is generally well manufactured by the great majority of our regular bakers. Much has been published respecting the adulteration of this necessary article without any just ground, and although a small portion of alum has occasionally been met with in bread, it is by no means a common or general practice, and is seldom adopted out of London; and for this the Londoners have themselves to blame, as they prefer new bread of a firm white texture, which are qualities the alum is intended to impart, whereas if they only waited another day, the bread would be equally firm, but perhaps not so unnaturally white without the addition of the alum. The greatest quantity of alum, however, that enters into the composition of a quartern loaf is 36 grains, and when the change that takes place by baking is calculated, this quantity is not likely to produce those serious inconveniences some alarmists would have us believe, although there are, doubtless, cases in which its continued use would prove injurious. We have the authority of Dr Ure, and our own experience, for stating that alum is scarcely ever found in bread, in Edinburgh, Glasgow, and the other towns in Scotland; and in the Doctor's work on the Philosophy of Manufactures, he contrasts the neat clean shops of the Glasgow and Edinburgh bakers, with those of Manchester, where bread and other articles of provision are huddled together. In wet seasons, or when wheat has been exposed to wet, good bread cannot be produced from the flour, without the addition of magnesia, or the carbonate of soda, or am-

monia; but the experiments of Dr Davy prove that the carbonate of magnesia, an addition which cannot injure the most delicate in the quantity that is used, is preferable to every other, and also for correcting the bad qualities of flour produced from germinating wheat.

The addition of potatoes has likewise been complained of; but it is a fact well known to every individual who has any practical knowledge of the subject, that when a small quantity of potatoes is used, they not only aid in the fermentative process, but make a sweeter loaf of bread, having a finer flavour, and which will keep longer moist than one in which no potatoes are used. Every baker likewise knows, that by attempting to use a greater quantity, he only spoils his batch, and he himself is the principal sufferer, while the trouble attendant on the very small quantity required for the improvement of the bread, can afford no remuneration whatever but that of procuring a readier sale for a superior article. The stories told about introducing whiting, stucco or plaster of Paris, and powdered bones, are all equally unfounded, as they would completely destroy the bread, and render it unsaleable. We have noticed these circumstances to ease the minds of many who have read Accum, and other works on adulterations. The only adulterations we have met with in Glasgow and other great towns, are those practised by what are usually called cheap-bread-bakers, who make bread of very inferior flour, and who may occasionally be tempted to use a little alum, to impart a degree of whiteness the flour does not possess; but if any are deceived by bread of this description, they have themselves to blame.

Good wheaten bread, one day old, is certainly well entitled to the place it happily holds among the table comforts of all classes in this country. When eaten warm, or soon after it leaves the oven, it seldom fails to produce derangement of the stomach, especially heartburn and acidity. Indeed it is not only more consistent with hygeienic rules, to use bread of one, two, or even three days old, but it is likewise far more economical.

Crumbs of bread two or three days old, when boiled with milk, or even with water, form a mild useful poultice in a variety of cases, and it may be appropriated in various forms in the practice of medicine and surgery, which will be noticed under their proper heads.

What is usually denominated *Bread Pudding*, is an easily digested and wholesome composition, and well suited for delicate stomachs.

The other kinds of bread will be noticed under the names of the different grains which produce the meal or flour from which they are formed. It may not, however, be out of place here shortly to allude to what is called *Sago Bread*, which is formed of a mixture of wheat-flour and sago. From all the specimens we have yet seen, we doubt if sago is well calculated for the process of panary fermentation. At any rate we conceive it would require to be well dried, and reduced to as fine flour as the wheaten, and even then used in small proportion, in order to form light porous bread. We however refer to the article *Sago* for more extended information on the subject.

Long before writing this article we took considerable pains to ascertain the truth or falsehood of the various reports respecting the adulteration of this necessary of life, and we can assure those who have had many and strong suspicions on this point, that they are nearly if not altogether without foundation.

BREAD-FRUIT. This fruit, first discovered by Captain Dampier, is described by him as follows: 'This fruit grows on the boughs like apples: it is as big as a penny loaf when the wheat is five shillings the bushel. It is of a round shape, and hath a tough thick rind. When the fruit is ripe, it is yellow and soft, and the taste is sweet and pleasant. The natives of Guam use it for bread. They gather it when full grown, while it is green and hard; then they bake it in an oven, which scorcheth the rind, and makes it black, but they scrape off the outside black crust, and there remains a tender thin crust; and the inside is soft, tender, and white, like the crumbs of a penny loaf. There is neither seed nor stone in the inside, but all a firm substance like bread. It must be eaten new, for if it be kept above twenty-four hours, it becomes dry, and eats harsh and choky; but it is very pleasant before it is too stale. This fruit lasts, in season, eight months in the year, during which time the natives eat no other sort of food of bread kind. I never did see this fruit any where but here (Guam.) The natives told us that there is plenty of this fruit growing on the rest of the Ladrone islands, and I did never hear of it any where else.' This rich gift of nature was, however, more widely dispersed than Dampier apprehended, as it abounds in most of the islands of the southern Pacific ocean, and by the liberality of the British government has been introduced into the West Indies, and subsequently into the Mauritius, the isle of Bourbon, and the Philippine isles, &c.

Another species resembling the bread-fruit, of which there are numerous varieties, is likewise met with in the Nicobar islands.

BREAKFAST. This morning or early meal should be more substantial than it generally is, especially among the inhabitants of cities and great towns. In many cases there is, however, a much more aggravated breach of hygeienic laws, by its being composed of the most unsuitable articles that can well be selected. Hot rolls, swimming in butter, are certainly a most unsuitable morning meal for the sedentary;

and those employed in light occupations, and warm toast, *saturated with butter*, is scarcely less objectionable. All the objections that can be urged against new bread, apply with double force when hot rolls are in the question, as the dough, from which rolls are formed, is never subjected to that complete state of primary fermentation, as the dough of loaf bread, and the composition, even in its best state, is not, therefore, so well suited to delicate stomachs. Cold roast beef, mutton, or fowl, tongue, ham, smoked fish of various kinds, and eggs in moderation, with plain cold toast, either with or without butter, or bread without toasting, are all suitable articles for the breakfast table; and those who are accustomed to late dinners, should always make a point of taking a substantial breakfast if the appetite require it, and if it can be eaten with a zest.

It has been well observed by some of our best writers on dietetics, that for those who work by day, and sleep by night, an early breakfast, an early dinner, and an early supper, will be most conducive to health. Late breakfasts, however, are preferable for those who, contrary to the laws of nature, keep late hours; indeed, those who eat late suppers, ought not to breakfast for one or two hours after rising; but those who dine late, and eat nothing afterwards, require breakfast sooner. Perhaps the best general rule is to breakfast about half an hour, or an hour after rising. Those who are obliged to rise very early, should take a cup of coffee or tea with a biscuit soon after getting up, and a more substantial breakfast about three hours afterwards. Individuals exposed to cold moisture, the morning dews, unwholesome air, or any other cause of infection, especially visiting friends or patients in infectious fevers, should always fortify the stomach with either a partial or complete breakfast before setting out. Travellers should make an invariable rule of taking a cup of tea with an egg and biscuit before starting, if the stomach refuse more substantial fare or a full repast.

The bilious and delicate, who cannot indulge in substantial dishes, should have two or more fresh eggs well whisked, which should be used in place of milk with their tea, the whisked egg being put in the bottom of the cup, and the hot tea poured on it. This seldom oppresses the stomach, and at the same time affords considerable nourishment, and we have often seen its continued use of very considerable benefit to delicate invalids. When eggs are used in the ordinary way, they should never be boiled beyond the space of three minutes, or even two and a half, as hard boiled eggs are most indigestible, and often very oppressive to ordinary stomachs.

Where spoon meats are used at breakfast, it is a good rule to introduce a portion of some article which calls into action the masticatory organs; and the system adopted by many of the industrious classes in Scotland, of beginning breakfast with a plate of porridge or stirabout, and concluding it with bread and milk, or a cup of tea, is certainly a good practice; nay, even the potatoes, beefsteak, or ham and egg dishes frequently to be met with at the breakfast tables of the middle classes in Ireland, are far from being objectionable for those who take active, or even an ordinary share of exercise in the open air.

BREAST. The appearance and situation of the breast in the male requires no description. The breasts in the female consist of glandular structure, vessels for the secretion of milk, and of excretory ducts, which open by small orifices in the nipple, and discharge the secreted fluid for the nourishment of the child. The glandular structure is covered by fat, except at the fore part over the nipple, and the integument. At the centre of each breast there is a small projection, the nipple, and this is surrounded by a dark ring, termed the areola. The nipple is the part which the infant seizes in its mouth, and by means of suction a vacuum is produced, into which the milk flows from the pressure of the external atmosphere on the breast, and so passes into the mouth of the child. The breast is liable to many diseases from irritation during nursing, bruises of the part, undue pressure from tight clothes, and from constitutional causes. Inflammation of the breast is very common during nursing, or from a superabundant secretion of milk. During pregnancy a large quantity of blood is sent to the uterus for the purpose of supplying that organ with sufficient blood for the nutrition of the fœtus; but after delivery the nourishment of the infant being from the breast, there is an increased determination of blood to that part to enable it to perform the necessary function, and thus, when irritation is set up, there the increased action runs high, and terminates frequently in inflammation.

The symptoms are pain, heat, and hard knotty swellings in the breast, often extending to the arm. This swelling increases and becomes general, and the integuments covering it become red and glistening, and the pain intense and constant; and if active measures be not had recourse to, it terminates in suppuration, or milk abscess, as it is called. The inflammation is accompanied by great constitutional irritation and general fever.

The treatment consists in drawing off the milk by means of breast-glasses, or gentle suction, and then applying cold evaporating lotions, or tepid fomentations; if more agreeable to the feelings of the patient, gentle friction with olive oil, mixed with a small quantity of vinegar, and the exhibition of cooling laxatives, of which the saline are the preferable. When the inflam-

mation and general excitement is severe, and the patient tolerably strong, general blood-letting may even be necessary.

When suppuration is threatened, poultices and warm fomentations must be applied constantly; and whenever matter can be felt, an early opening should be made to evacuate the abscess, as otherwise the pus is apt to burrow amongst the fat, instead of passing towards the surface, and thus a very troublesome disease, named sinus, is produced. Chronic abscesses of the breast are met with most frequently in persons of a scrofulous constitution. The matter ought to be evacuated, and the constitutional treatment directed in the article on *Scrofula* employed for the purpose of improving the general health. In some cases of chronic abscess of the breast, from the gradual manner in which it appears, and the hardness of the surrounding parts, it has been mistaken for malignant disease, and, indeed, females are often unnecessarily alarmed by good-natured acquaintances sympathizing with them on the danger of what they are pleased to term cancerous affections.

Lacteal swelling is another troublesome disease of the breast. It is confined to the nipple, and consists of a large collection of milk in one of the lactiferous tubes, whose orifice has been closed from the effects of inflammation. The swelling presents distinct fluctuation, the veins of the skin are large, but the skin is not discoloured. If it be opened by a slight puncture, this soon heals, and another collection takes place; or if it opens by ulceration at a short distance from the nipple, it continues open during the period of suckling, and the milk, instead of passing into the child's mouth, is lost.

Treatment. A puncture will suffice if the child be weaned; if not, a larger opening must be made to allow the milk to escape while the child is sucking, until the secretion of milk is stopped, or the infant weaned. Gentle friction of the swollen part with warm camphorated oil, and attention to the bowels, may also be had recourse to.

The breasts of infants are sometimes inflamed and swollen from a collection of milk-like fluid. Sometimes the swelling is relieved by the discharge of the fluid; but squeezing the breasts to produce that effect should be strictly forbidden, as it may induce violent inflammation and abscess. The best plan of treatment is frequently bathing the swollen part with warm milk and water, or weak vinegar and water, also used warm, together with frictions with warm olive oil, or dusting the parts with fine hair powder.

The breast is subject to various forms of disease, some of a malignant character, and others simple. The principal are cancer, fungus, hæmatodes, hydatids, and the simple fibrous tumour; but as these diseases are common to other parts of the body as well as the breast, they will be found described under their respective titles.

BRIMSTONE. See *Sulphur*.

BROCOLI, or *Brassica Obracia*. This culinary vegetable is supposed to have proceeded from the cauliflower; and Dr Neil observes, 'that no culinary plant is so liable to spirt as brocoli, so that new kinds, slightly different, are continually coming into notice or favour, and as speedily sinking into neglect. There are many sub-varieties, the purple or hardiest sorts of which are esteemed the best; but the cream-coloured, or Portsmouth brocoli, is a very noble sort, exceeding all others in size. There was a head of this variety raised in the garden of Sir Joseph Banks in 1819, which measured more than two feet in circumference, although it was quite close.

The common characteristics of brocoli, as distinguished from cauliflower, are colour in the flowers and leaves, and a comparatively hardy constitution to stand the winter.

The brocoli is indeed a culinary vegetable of excellent quality, and a plant which the poor man, as well as the rich, might always find in its season on the table. Well boiled, and with a moderate quantity of Jamaica and black pepper, it furnishes a good assimulating dish along with solid animal food, and acts a pleasant second part in the dietetary arrangements of the industrious classes of society. Like many others of its class, it deserves to be more extensively cultivated, and more easily procured, especially in our great towns, than at present.

BRONCHI. The trachea, or wind-pipe, having extended from the larynx as far down as the fourth or fifth vertebræ of the back, divides into two branches, forming what are called the right and left bronchial tubes, each of which ramify through the substance of that lobe of the lungs to which it is distributed by an infinite number of branches, which are formed and separated from each other, like those of the trachea, by an intervening membrane and ligamentary substance. As the branches of the bronchia descend, they become more minute, and their cartilages become less distinct, till at length they become perfectly membranous, and terminate in forming the air cells of the lungs.

The bronchia are always less or more affected in cases of severe colds, and in inflammations of the lungs, and are likewise the seat of the disease described in the immediately succeeding article.

BRONCHITIS. This has generally been considered not as a distinct affection, but as a species either of catarrh, or cold, or of pneumonia, or inflammation of the lungs. It seems, however, to be distinguished from the first of these by its seat, and from the latter by its symptoms, as it consists of an affection of the bronchia very analagous to that of the mucous

membrane of the nose and fauces in a severe cold. Although, however, bronchitis may be considered a distinct disease, its nature is obviously very similar to that of catarrh, and the two affections are frequently connected together; the former is often the effect or sequel of the latter, and they run into each other by insensible shades or gradations. The principal difference between a severe attack of catarrh, or cold, and bronchitis, depends upon the more chronic nature of the latter, and its being connected with particular constitutions and ages, rather than originating from the mere action of an external exciting cause. That our meaning may be better understood without a reference to the articles on catarrh and pneumonia, we may state, that if there is less redness of the eyes, fullness and heat of the nostrils, followed by the distillation of a thin acrid fluid from these parts, or, in common language, a running from the nose, together with soreness in the trachea, hoarseness, and frequent sneezing, all of which symptoms are common in catarrh; in bronchitis this has a peculiar wheezing and rattle in breathing, with a severer cough, loss of appetite, and general lassitude, with chilliness and evening fever, while in the sequel the cough becomes more moist, and is attended with an excretion of mucus, which at first is thin, white, and expectorated with some difficulty, but becomes gradually thicker, and of a yellow colour, and is at length brought up with less difficulty, although a degree of bronchitic affection often remains stationary, unless proper means have been pursued in the commencement. The treatment, however, in this disease is almost the very same with that recommended in the article on *Catarrh*, and in addition a blister, the size of our page, laid across the chest, and allowed to remain six hours, when it may be removed, and the surface dressed with basilicon ointment, thinly spread on a linen rag, with a cushion of soft wadding placed over it. The basilicon may next day be exchanged for culamine cerate, till the surface is healed.

If, however, the disease assume a chronic form, a slight discharge may be kept up by dressing the blistered surface with savine cerate, or tartar emetic ointment, followed by the exhibition of expectorants and diaphoretic medicines, with due attention to the state of the bowels.

BRONCHOCELE, OR DERBYSHIRE GOITRE. This affection is an enlargement of the thyroid gland, and is characterised by a tumour on the fore part of the neck, which is seated principally between the windpipe and the skin. It is very common in Derbyshire, and in some other districts of England; but rare in other parts of Britain or Ireland. It likewise prevails among the inhabitants of the valleys of the Alps, and is known there by the name of *Goitre*, and is likewise met with among the inhabitants of the mountainous regions of India. In many cases it acquires an immense size, and produces a most disagreeable appearance.

The causes are not yet correctly ascertained. It was by some imputed to the use of snow water; but this has been proved to be incorrect; by others to calcareous earths, saline and mineral springs, &c. The quality of the water may, indeed, be a predisposing cause; but the surgeons at those stations in India where it prevails think that it is rather to be attributed to some peculiarity in the climate, aided by the habits and practices of the natives, both with respect to diet, clothing, and other circumstances, as a cure is speedily effected by a timeous removal. The chief remedy formerly employed for the cure of this disease was burnt sponge, in the form of a lozenge; but this remedy is now almost entirely superseded by iodine or its preparations, the ointment of which is daily rubbed on the tumour in small portions, about the size of a small horse bean; and the tincture of iodine, given in doses of six drops, three times a-day, in half a wine glass of syrup, and the same quantity of water, gradually increasing the dose one drop each time, that is, three drops daily, till fifteen or sixteen are taken at one time.

BROOM, or the *Spartium Scoparium*, or *Genistæ*. The tops of this well known shrub have a nauseous bitter taste, and the seeds are almost equally bitter. Both the tops and seeds possess powerful diuretic and alterative properties; and the Dublin college order an extract of the tops, which is one of the most useful formulæ in the pharmacopeia, although it is omitted by both the Edinburgh and London colleges. The extract is generally administered in the form of pills, but more frequently combined with squills, or some other diuretic, and the following is a very safe and convenient diuretic:

Broom Pills with Squills.

Extract of Broom, two drams.
Powder of Squills, one dram.
Oil of Juniper, twelve drops.

Beat into a uniform mass, and form the whole into sixty equal sized pills. Three of these pills night and morning, or every four hours, in conjunction with a tea cupfull of the infusion of broom, will be found often to act with effect.

Simple Infusion.

Fresh Broom tops, one ounce.
Boiling Water, one pint.

Macerate for four hours, or a night, and strain. As this quantity is usually taken in the course of a day, it is better to put the broom in the water at bed-time, so as the infusion may be ready in the morning.

This infusion is a very powerful diuretic in dropsy. The addition of a spoonfull of either British or foreign gin to each dose, will not only render the medicine less nauseous, but likewise increase its diuretic effects, especially in cases

of dropsy, which are always connected with a great degree of debility.

The decoction of broom tops has lately been extolled in hydrophobia by a Dr Marochetti, who witnessed its effects in the Ukraine, in 1813, upon fourteen patients, and which he confirmed five years afterwards in the treatment of twenty-six persons who had been bitten by a mad dog. A pint and a half of the decoction was given daily.

The ashes of broom were long celebrated for the cure of dropsy, but is now never employed in this country. In fine, broom is one of the most effective and useful of British plants; and the best time for collecting the tops for making the extract, is when the flowers have fallen off, and the pods beginning to form.

BRUCINE. This is one of the recently discovered alkalis, or alkaloids, as they are sometimes termed. It is obtained from the *False Angustura Bark*, or the *Brucia Anti-dysenterica*, and is also found in the nux vomica, partaking of similar qualities, though in a less degree than strychnine, on the presence of which the properties of the nux vomica depends.

Brucine is white and crystallized, in four-sided oblique prisms, and has a very bitter taste, with a certain degree of acridity, which remains long in the mouth. It dissolves very easily in alcohol, even as weak as 0·88. Although for the information of the general reader we have inserted an account of this and other of the new French remedies, we hope none will be foolhardy enough to employ this active preparation without professional advice, as an overdose would produce the most unpleasant symptoms, and even death itself.

BUBO. This term is applied to those inflammatory glandular swellings which take place in the armpit and groin. Buboes are divided into sympathetic and venereal; the former depending on the effects of irritation, extending along the absorbent vessels to the glands, as from punctures, ulceration near the nails, or on the leg, &c.; whilst the venereal bubo means those swellings which are caused by the absorption of the specific virus from venereal sores on the genitals.

They are distinguished from each other by the absence or otherwise of sores on the genitals, and by the presence of other sources of irritation elsewhere, by the venereal generally involving only one gland, and by its being situated in the upper cluster of glands in the groin.

The symptoms are pain and stiffness in the part, followed by enlargement and hardness of the gland, which rapidly increases, as do all the inflammatory swellings, then the skin becomes discoloured, and the tumour fluctuates on pressure; in other words, the inflammation generally runs on to the suppurative stage.

The local treatment of bubo is the same as that of any other inflammatory swelling. In the first stage leeches must be applied, followed by fomentations, and subsequently by evaporating lotions, or a solution of muriate of ammonia used warm to the swelling. When suppuration seems to have commenced, it must be encouraged by poulticing; and when pus is fully formed, the bubo must be opened by a free incision, and poultices applied, the wound being afterwards dressed as any other granulating sore. Complete rest is indispensable throughout every stage of this disease.

In cases of a chronic nature, where the swelling neither decreases nor yet inclines to suppurate, we must first apply frictions, with mercurial or iodine ointment, combined with camphor; and if these prove ineffectual, blistering must be had recourse to. With regard to the constitutional treatment, that must be regulated by the cause of the bubo, the usual treatment pointed out in speaking of syphilis, punctured and poisoned wounds, &c., being adopted according as it depends on one or other of these causes.

BUCHU LEAVES, or the *Diosma Crenata*, *Odorata* and *Serratifolia*. The buchu leaves imported into this country are mixed with stalks and fruit, and present so considerable a variety as to size and form, that not only the leaves of the officinal species (diosma crenata), but likewise the leaves of diosma odorata, the diosma serratifolia, and probably other species, are imported under the name of buchu leaves, and may be equally effective as a medicine.

The active principles, however, of all the varieties are volatile oil, resin, and bitter extractive. The oil possesses the colour of the leaves in a high degree, has a yellowish brown colour, and is lighter than water.

Buchu acts as a stimulant, tonic, and aromatic, promoting digestion, and sharpening the appetite, relieving nausea and flatulence, and in many cases remarkably increasing the secretion of urine, and is supposed to exert a peculiar influence on the urinary organs, while it also promotes perspiration.

The buchu has in this country obtained some celebrity in relieving, if not removing, chronic inflammation of the mucous membrane of the bladder, while it diminishes the discharge of mucus, and enables the patient to retain his urine. It does not, however, always produce these salutary effects, for in some cases it is not only useless, but the irritability of the bladder has been actually increased by its use. Those cases, however, in which it is most likely to deceive the prescriber, are the cases of those who have induced a premature old age by spirituous or vinous intemperance, and whose whole system, but especially the urinary organs, have suffered in the common wreck. It has also been used with benefit in cases of spasmodic stricture, and in urinary diseases attended with increased se-

cretion of uric acid. By its sudorific properties it seems to have been useful occasionally in rheumatism, especially in old men, who have employed it with the more immediate view of relieving the urinary organs; and even in such rheumatic cases, when employed externally as a rubefacient, in the form of tincture or embrocation, formed by the oil, it has given great relief. In dyspeptic and stomachic affections its aromatic qualities have rendered it beneficial.

Buchu leaves are administered in substance in the form of powder, in doses of from a scruple to half a dram, or two scruples, in wine or other vehicle. The infusion, which is prepared by macerating one ounce of the leaves in one pint of boiling water, for four or five hours, and then straining, is usually given in doses of from one to two ounces, twice or thrice a-day. The tincture is prepared by macerating two ounces of the leaves in a pint of proof spirit, for five or six days, and straining. The dose is from one to three or four drams, in wine or any suitable vehicle, such as an infusion of riva terse, carrot seed, or parsley seed. The tincture is, as already stated, occasionally used as a rubefacient. From the trials we have made of this medicine, which was not employed in this country till 1823, we have no doubt it will sustain its place with credit in the materia medica; and the cases in which it has failed will only prove a more powerful excitement to professional men to study its effects on the system with more attention and zeal than hitherto.

BUCKBEAN, BOGBEAN, OR MARSH TREFOIL, the *Minyanthis Trifoliata* of the Linnæan class *Pentandria*, and order *Monogynia*. This beautiful indigenous perennial plant has long been a favourite with the domestic practitioner as a native tonic and bitter of no mean note. The exquisite beauty of its flowers is generally admired by botanists; and hence while the poor man medicates his ale and table beer with the roots, stalk, or leaves, the rich man ornaments his natural or artificial aquina with this unrivalled queen of the waters.

It is inodorous, with an intensely bitter taste, which water extracts, along with the medical properties which it possesses. It is diuretic, purgative, and tonic, and, in large doses, emetic. It has been employed in gouty and chronic rheumatic affections, and in intermittents, cachectic, and herpetic diseases. It has long been regarded as a stomachic bitter, and is still used as such, especially in the spring, in the form of infusion, which is, however, frequently made too strong, and therefore sometimes acts as an emetic, and disgusts the patient at its use.

BUCKTHORN, or the *Rhamnus Catharticus*, or *Spinæ Cervinæ*. This bush is common in hedges in many parts of England. It flowers in June, and ripens its fruit in September or beginning of October. The berries, which are employed in medicine, are about the size of a pea, have four seeds, and the taste is nauseous and bitter, while the odour is faint and disagreeable. The juice of the berry rubbed on paper imparts a green colour. It is the more necessary to attend to these marks, as the berries are frequently mixed with others, especially those of the black berry-bearing alder, and those of the dogberry tree. The berries of the former, however, have only two seeds, and the latter only one.

These berries have long been in considerable esteem as cathartics, although not now so generally prescribed by the profession; they are still, however, a favourite domestic medicine. The fresh berries, in doses of from ten to twenty, purge freely; but the only officinal preparation is the syrup, which is prepared as follows: The juice is first obtained from the berries, and set aside; when the impurities fall to the bottom, the pure juice is then poured off. To one pint of this pure juice add one pound of sugar, and inclose in a thin lena or small muslin bag, bruised ginger, pimento, and cloves, each two drams, and place these ingredients over steam, as directed for the preparation of *Honey*, and allow them to remain till the sugar is dissolved, and a syrup formed, skimming off the impurities as they arise This process is superior for domestic purposes to the complicated one directed by the colleges, and produces a superior syrup. The syrup sold in the shops is generally prepared with treacle or coarse sugar, while refined sugar is ordered by the colleges.

The syrup is given in doses from half an ounce to an ounce and a half; but it should never be given to infants or children, except in the form of enema, with equal parts of melted butter, lard, or sweet oil. It is a very energetic purgative, and one that seldom disappoints the prescriber; but should never be given to children under four or five years of age, as it is attended with griping, rumbling noise in the bowels, and dryness of the mouth and fauces.

BURNS, are injuries inflicted on the body by the application of heated solids or fire; whilst those injuries caused by heated fluids are termed scalds. Burns are dangerous according to the extent of surface involved, or the intensity of heat applied. A slight degree of heat produces redness of the surface, with hot and acute pain, generally followed by vesication; a greater degree of heat causes almost immediate vesication; and in burns from fire, or intensely heated bodies, the cuticle, or the skin, throughout its whole thickness, may be entirely destroyed, and the deeper seated parts injured, and even parts not severely injured at first may afterwards die from violent inflammation being excited, which terminates in sloughing. For the vitality of the parts in the neighbourhood of the injury being impaired when violent inflammation takes place,

sloughing is the almost inevitable consequence; and from the same cause the subsequent sores are long of healing, and the granulations pale and flabby, owing to their impaired vitality preventing them from assuming a healthy action.

Severe burns are attended with violent constitutional effects. In the first instance there is great sinking of the vital powers, or collapse, as it is termed; there is a shivering weak pulse, cold extremities, anxious expression of the countenance, and vomiting, and the patient sometimes sinks, without any reaction taking place. When reaction takes place, there is often violent constitutional irritation, fever, and not unfrequently inflammation of some internal organ takes place. Should the patient not sink from the immediate effects of the injury, there is still great danger to be apprehended, more particularly in burns of the trunk or head, from seropurulent effusion into the chest or other cavities, and also from the strength of the patient being unequal to withstand the violent irritation attendant on the sloughing process, or the increased action requisite for the reparative process which succeeds it.

With regard to the treatment of burns, the constitutional remedies, during the stage of depression, consist of the exhibition of cordials, opiates, and even strong stimulants, in some cases where the sinking of the vital powers is great; but stimulation should always be used with great caution, lest we render the subsequent reaction immoderate. The next part of the treatment is the local applications. There are so many recommended, that there is scarcely any one who has not some favourite remedy for this common accident. Where there is only vesication, the best perhaps is a mixture of oil and lime water, applied on lint or rags, which should be kept constantly moist with it; or the sugar of lead ointment, spread on linen rags, and applied in the same manner. When the blister is very large, there is great risk of it breaking, owing to its size and the restlessness of the patient, and the cuticle would thus be separated, leaving a large raw surface. In such cases the blister should be punctured with the point of a lancet, and the serum being allowed to escape, the cuticle should be laid smoothly down, so as to act as a covering to the injured surface, and then either of the above-mentioned applications employed. In extensive burns, where the skin is destroyed, the best applications are either fine carded cotton wool, to envelope the part completely, or covering the part by means of dredging it with flour. Both these applications act by forming a sort of substitute for the cuticle, preventing the irritation caused by the exposure of the raw surface to the atmosphere, and by preventing, in a degree, pressure on the part.

The flour is, perhaps, the preferable application, for the cotton is apt to turn offensive from giving lodgment to purulent matters, or requires to be frequently changed to prevent that, and this causes more irritation; whilst the flour absorbing the discharge, soon forms a crust, which effectually protects the surface, and the after secretion readily escapes from beneath it, no more moisture being absorbed than is merely sufficient for encrustation. The artificial covering ought not to be removed until detached by the pus effused below it; then it can be of no service, and its removal is easily accomplished by fomentations or poultices. After the spontaneous separation of the crust, fresh flour may be dusted over the suppurating surface. In burns of small extent, little further local treatment is requisite; but in extensive injuries, when granulation has begun, lotions and ointments require to be used as in any other granulating sore, and from the debilitated state of the part, these require to be of a gently stimulating kind.

When reaction commences, all cordials or other stimulants must be given up; and the general fever is to be treated by means of anodyne diaphoretics, and the exhibition of gentle laxatives; for all diuretic or active purgatives should be avoided, as they oblige the patient to make frequent movements, which are always painful, and increase the constitutional irritation. Acidulated or effervescing drinks should be given, but in small quantities, only to allay the thirst; if vomiting is present, the effervescing draughts are to be preferred. If well marked symptoms of inflammation supervene, bleeding and other antiphlogistic treatment must be resorted to; but always recollecting the peculiar circumstances of the case, and that the constitution will require all its powers to repair the injured part. During the reparative process the constitution will likely require support by proper diet, and sometimes even slight stimulation, as wine, porter, &c., but always with due caution; and great attention should be given to the position of the healing parts, to prevent, as far as possible, contraction of the cicatrices, or scars, or cohesion of opposed surfaces, which often give rise to deformity.

Finally, the means of preventing these dreadful accidents can never be too frequently repeated. These are, enveloping the person in rug, table-cloth, cloak, or any other material of the kind at hand, or by sitting down, in cases where the skirt of the gown, for example, has taken fire, thereby extinguishing it from want of air; and above all, the danger is greatly increased by the patient running into the open air, as the flames are thereby fanned as it were, and spread with tenfold rapidity.

BURSAE MUCOSAE. These are membranous bags filled with a lubricating fluid, and placed beneath the tendons of muscles and other situations where there is much motion, or where the parts are subjected to much pressure. Their

function seems to be that of facilitating motion, and preventing the bad effects of friction and pressure. Bursae are lined by a membrane, resembling the synovial both in appearance and function. This membrane secretes the lubricating fluid, and is liable to disease and inflammation generally from external injury, as being subjected to frequent pressure, &c.; or it may accompany disease of the neighbouring joint.

The large bursa situated over the patella, or knee-pan, is that most frequently affected, and is generally known by the name of housemaid's knee; from that class of persons being subject to it from resting frequently on the knee, in cleaning stairs, &c., and we shall, therefore, take this as a general example of the disease.

There is first pain, redness, and swelling over the knee from inflammation, and consequent increased effusion from the exhalant vessels of the lining membrane. If the inflammation is violent, lymph is sometimes effused, causing thickening of the lining membrane, or of the external cellular tissue, sometimes the inflammatory action terminates in suppuration, which, if not actively treated, may extend, and open into the joint.

In chronic cases, we frequently find cartilaginous bodies attached, by narrow pedicles, to the membrane floating in the accumulated fluid; these are most common in the thecal bursae, at the wrist and ankle.

The treatment consists in the local abstraction of blood, sometimes even general bloodletting, purgative medicines, and anodyne fomentations. After inflammation has subsided, and the parts still remain swollen, stimulating embrocations, sinapisms, or even blisters, must be employed. When suppuration occurs, they must be opened, and treated like other abscesses. In chronic cases, enlarged bursae may be removed by surgical operation, but this should never be done, unless they give rise to great inconvenience.

BUTTER. This well known article of diet forms a proportion of the sustenance of the great majority of the rich, middling, and operative classes, and even of the poor in Great Britain; and it is indeed, in the greater number of cases, a most valuable article. Its mode of production is well known, it being the oily part of the milk of the cow, separated from the whey, and cheese, and other parts, by the operation of churning. Butter is a concrete soft substance, of a yellow colour, approaching more or less to that of gold, and of a mild agreeable taste; it melts by a gentle heat, and becomes solid by cooling.

There are various modes of curing butter, which vary in almost every district of the same nation, chiefly in the greater or lesser proportion of salt employed in the process. That recommended by the late Dr James Anderson, and perhaps now most generally adopted in Britain, is as follows:—One part of refined sugar, one of nitre, and two of the best Spanish great salt, is rubbed together into a fine powder. As soon as the butter is completely freed from the milk, this composition is to be mixed thoroughly with the butter, in the proportion of one ounce to sixteen; and thus prepared, the butter is to be pressed *tight* into the vessel destined to hold it, so that no vacuities are left. A fortnight may be allowed to expire before butter, thus prepared, is used; and at the expiration of that time, it will possess a fine rich marrowy taste and flavour, which no other butter ever acquires. In this state it may be kept for years in this country, and carried to the East Indies, if packed with sufficient care.

Fresh butter, when carefully made, and mixed with a small proportion of salt, is a most delicate, and to most people, an agreeable sort of food. When properly melted, without being burnt or singed, it is well calculated to accompany such vegetables as are naturally dry of themselves, imparting to them the qualities of rich oily substances. 'It is a kind of fashion with some,' says Dr Adair, 'to reprobate butter as very improper food, very slow of digestion, and having a tendency to generate gross and foul humours; but much indeed must depend on the freshness and quality of the article. It certainly strongly resists acescent fermentation, and is, by the consent of almost all nations, used with vegetables and fish, and, therefore, must have some qualities favourable to the digestion of particular foods.'

When, however, butter is melted with hot rolls, toasted bread, muffins, &c., it proves injurious in these forms to most sedentary and bilious individuals, who are not in the habit of using much out-door exercise; and is, especially, injurious to delicate children, or to children inclined to be of a gross and plethoric habit; but to brisk and active children, a moderate use of fresh butter, eaten with potatoes or plain bread, may be used, and it tends to check the acid fermentation which is generally prevalent in their stomachs at that period of life.

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CABBAGE TREE BARK, or the *Cortex Geoffragii inermis*. The cabbage tree is a native of the West Indies, where it grows abundantly, especially in Jamaica. The bark, which is the part used, is imported in long, thick, fibrous pieces, of a brownish ash colour, a resinous fracture, a sweetish, mucilaginous, bitter taste, and a disagreeable flavour.

The bark has been celebrated, and is yet used as an anthelmintic, or worm medicine, especially in cases of the long round worm. In substance, in the form of powder, it is given in doses of from a scruple to half a dram, and in this dose it purges briskly, with an operation somewhat resembling that of jalap.

The colleges order a decoction of the bark, which is administered to children of two years old in doses of two drams, gradually increasing the dose, according to the age and strength of the child, and to adults in doses of from half an ounce to two ounces.

Decoction of Cabbage Tree Bark.

Cabbage tree bark, in coarse powder, one ounce.
Water, two pints.

Boil over a slow clear fire till the liquid is reduced one half, or to one pint, and strain while hot.

This decoction, which has the colour of Madeira wine, sometimes produces unpleasant symptoms, when overdosed; or even the drinking of cold water, during its operation, will produce similar effects. The symptoms of an over-dose, either of the powder or decoction, are violent vomiting, fever, and delirium. Indeed, fatal accidents are said to have resulted from its imprudent use. These effects are remedied by castor oil, warm water, and more especially by drinking freely of strong lemonade.

CAJEPUT OIL. This oil is distilled from the leaves of the *Melalenea Cajeputi*, which grows in Amboyna.

It is limpid, of a green colour, but when rectified, colourless, and has a strong, fragrant, camphor-like odour, with a pungent aromatic taste.

It is antispasmodic, diaphoretic, and stimulant, and is used in cases of flatulence, tympanitis, hysteria, fainting, and in paralysis of the tongue.

Externally it is used as an embrocation, in rheumatism and gout, and to weak joints, after luxations. In its external use, it appears to have no superiority over oil of rosemary, and its internal virtues we never found superior to those of oil of peppermint. Its green colour is owing to the presence of copper, as it is sent from the island of Banda to Holland in copper flasks. The genuine oil burns entirely away without leaving any residuum, but it is often adulterated with other essential oils, and coloured with the resin of milfoil.

It is used for all the purposes for which the well-known oil and essence of peppermint is employed, and in the same dose, or from three to five drops of the undiluted oil on a lump of sugar. It rose to a very high price when the cholera was common in Britain, although, as we have already stated, it has no superiority over the other two oils above named. Like all other pungent volatile oils, the pain of a hollow carious tooth will be relieved by dropping two or three drops into the cavity.

One dram of the oil, in one ounce of soap liniment, forms an excellent embrocation in weak or stiff joints, after luxations and fractures.

CALAMINE, or the Impure Carbonate of Zinc; sometimes called *Lapis Calaminaris*, and not unfrequently asked for in the shops under the name of *Lapis*, a name, by the by, likewise given to Tutty-stone, or the impure oxide of zinc.

Calamine, as employed in the practice of medicine and surgery, has a pale reddish-yellow colour, and is reduced to an impalpable powder by roasting, and in this state is called prepared calamine. The fine powder is sprinkled on excoriations and tender surfaces, and it is employed as dusting powder for infants, and is very preferable to white lead, which is apt to be absorbed, and occasion colic.

Calamine, when mixed with olive oil and melted bees' wax, forms the ointment known by the name of Turner's cerate.

CALOMEL, or the Submuriate of Mercury, or more recently the Proto-chloride of Mercury. There is perhaps no medicine which is so extensively employed as calomel, or so very frequently injudiciously prescribed, both by the domestic and professional practitioner. This well known preparation need scarcely be described. Its constituents are—quicksilver, 79; oxygen, 9·5; muriatic acid, 11·5; or—chlorine, 15·25; mercury, 84·75, in 100 parts of submuriate. As it appears in the shops, after being submitted to pulverization and lixiviation, it is an impalpable ivory-coloured powder of the specific gravity of 7·175, inodorous and nearly insipid.

It would require no ordinary space to enumerate all the cases in which it is prescribed; it is chiefly regarded, however, as an alterative, and in larger doses purgative, and in common

with the other mercurial preparations, antisyphilitic. It is prescribed in doses of from half a grain up to a scruple, and when administered as a purgative, it is remarkable that children bear larger doses than adults. Nay, it is more dangerous to prescribe a small dose as a purgative; as, should it fail to act on the bowels, it will excite ptyalism, or salivation, more or less severe.

The dose of calomel is from one to five grains; and in some diseases ten or even twenty grains are given. When given as a purgative, as in bilious complaints, &c., it is best combined with some other laxative, as extract of colocynth or rhubarb, and should be followed next morning by some saline laxative combined with a bitter, as Epsom salts, and infusion of gentian or camomile, or by a small dose of castor oil.

Calomel, like all other active preparations, particularly mercurials, is frequently abused; being prescribed by persons ignorant of its qualities, and when given in small doses, frequently repeated, it produces violent salivation, and therefore care should be taken not to repeat it too often, or quickly, as that effect might be produced. The cases in which calomel is useful will be mentioned when speaking of the various diseases, and the cases where it, in common with other mercurial preparations are contra-indicated, will be pointed out.

CALORIC is the term used in chemistry to express the cause of heat, whilst heat is used to express the sensation produced by the effect of caloric. The terms, however, are often used as synonymous.

Caloric is the most active agent in nature. All bodies contain it; but in different quantities, and on this depends their temperature. It has a tendency to pass from one substance to another; in some bodies it passes slowly from particle to particle, in others it is transmitted with great velocity; in either case it is communicated till an equality of temperature is established, unless this be prevented by the operation of some foreign agent. According as caloric is transmitted with greater or less velocity, by various substances, they are termed good or bad conductors; thus iron is a good conductor of caloric, whilst flannel is a bad conductor, and hence its use as an article of clothing, by preserving the heat of the body at its natural standard.

Cold is generally believed to be merely the absence of caloric, that is to say, it is a mere relative term; for example, if we touch a body which contains less caloric than our hand, we say it feels cold.

Bodies are enlarged or expanded by the reception of caloric; thus if we pass a rod of iron, when cold, through a gauge which exactly fits it, we find that, when heated, it is enlarged so as to be incapable of passing through the same gauge; or by holding a flaccid bladder before the fire, we find that it gradually becomes expanded. As bodies continue to receive additions of caloric, so they gradually continue to expand, till they become either fluid or vapour.

The effects of caloric on the human frame, will be more fully considered under the article on *Heat.*

CAMPHOR. Purified camphor, as it is sold in the shops, is a white semipellucid volatile brittle substance, of a crystalline texture, and not easily pulverised, having a peculiar consistence, resembling that of spermaceti, but harder. It has a strong peculiar fragrant odour, with a bitterish aromatic taste, accompanied with the sensation of cold. It is light enough to swim on water, is soluble in alcohol, ether, oils, vinegar, and in a very small proportion in water. It is very inflammable, burning with a very white flame and smoke, without leaving any residue; and such is its volatility, that it completely exhales when left exposed in warm air. Camphor exists in a great variety of plants, both native and exotic; in peppermint, rosemary, thyme, asarum, parsley, sago, the roots of zedoary, elecampane, and other plants, seeds, roots, and flowers. The camphor of commerce, or that employed in medicine, is procured from two species of laurus, chiefly the *Laurus Camphora*, which grows in great abundance in Borneo, Sumatra, Japan, and China. The Dutch have long had the monopoly of purifying the camphor from the impurities with which it is contaminated as imported from the east, and of forming it into cakes.

The sensible properties of camphor, as well as its immediate action on the body, would point it out as an active medicinal agent, and it has accordingly been much employed in medicine, yet there seems to be considerable doubt respecting its power over the body, or the nature of the effect which it produces. Its first operation is that of an excitant, stimulating and exerting the whole system, and afterwards producing sedative effects, which appear to be more than proportional to its primary action. Camphor has been frequently used for the purpose of relieving spasms, an operation which it is difficult to explain, and which may perhaps, in different cases, be effected by different kinds of actions. Some practitioners have supposed it to be very efficacious in procuring sleep in mania, and to possess some specific action on the urinary organs; and in the latter case there is no doubt, in some cases, it both tends to prevent the strangury occasioned by the application of large blisters, and likewise to relieve it when it exists.

It is likewise used in cynanche maligna, or malignant sore throat, in typhus and confluent small-pox, and other febrile affections in atonic gout, and as an auxiliary to bark and opium in

checking gangrene or mortification. The sedative and narcotic effects of camphor are produced with very little increase of pulse, and when combined with opiates, nitre, and antimonials, is frequently employed in inflammatory complaints. It is used externally with much advantage in rheumatic pains, and in nervous affections, and as a discutient. It alleviates the irritating effects, not only of cantharides, as we have already stated, but of mesereon, the saline preparations of mercury and drastic purgatives; and combined with squills, lessens the nauseating tendency of that medicine, and prevents its irritating effects on the urinary organs.

When dissolved in acetic acid, either alone or in combination with some essential oils, it is used as a perfume, under the name of aromatic vinegar.

Its effluence is very noxious to insects, especially moths, and hence chests made of camphor-wood, are used to preserve articles of dress in warm and moist climates, and a small bag of camphor, hung up in a wardrobe, or kept in drawers or a chest along with clothes, has a beneficial effect.

Camphor is employed, in substance, in the form of powder, bolus, or pill; but to reduce it to powder, it is necessary to drop a few drops of strong spirit on the camphor, as it cannot otherwise be reduced to a fine powder; but with this addition it is easily pulverised.

The *spirit of camphor*, accurately prepared, (and the preparation is so simple that any one may compound it), is extremely useful in cases of chilblains, gangrene, for discussing tumours, and relieving rheumatic and paralytic pains.

It is seldom used alone internally, although a strong solution of camphor in spirits was used in Ireland during the cholera, under the name of Ponsonby Drops.

Another preparation of this medicine, dissolved in olive oil, and known by the name of camphorated oil, or liniment, is applied by friction to glandular swellings, sprains, bruises, and affected joints. The celebrated oculist, Mr Ware, recommends a composition of half an ounce of the liquor of subcarbonate of potash, with two ounces of this liniment, to be applied to the edges of the eyelids night and morning, in incipient amaurosis. Combined with a third part of water of ammonia, or spirit of hartshorn, it forms an excellent camphorated volatile liniment to stiff joints, superior to the liniment of spirit of hartshorn and olive oil.

Camphor, however valuable in the practice of medicine, it should be remembered, is a very energetic excitant, which causes very violent nervous symptoms, and has even occasioned death.

When it is taken in too large doses, either by design or accident, it acts as a poison; the symptoms are violent excitement of the brain and nervous system, with vomiting, vertigo, preceded by pallid countenance, great anxiety, small pulse, difficult respiration, syncope, cold sweats, and convulsions; and although the instances are rare, sometimes death.

A large mustard cataplasm, a third larger than one of our pages, should be applied to the pit of the stomach; wine and opium administered at short intervals, till the symptoms abate. Four or five drops of laudanum, in two glasses of good wine, may be given every hour, and an enema of forty drops of laudanum, and half an ounce of the tincture of assafœtida, in two ounces of warm water, administered as an enema. Few opportunities have occurred for ascertaining the effects produced by poisoning with camphor. A medical man of considerable note, fell a victim to an overdose of this drug about forty years ago, as it was found by a paper on the table of his room that he had taken several large doses, and had even taken one not an hour before he was found in the agonies of death.

The peculiar smell of camphor almost renders any other test unnecessary; and, indeed, it may easily be discovered among the matter vomited by the sufferer.

CANCER. In describing this dreadful disease in a popular treatise, it is less with the intention of pointing out the method of treatment—for it requires all the skill of the regular practitioner, and even that too frequently avails but little—than to furnish such a knowledge of the character and progress of the malady, as may prevent the public being imposed upon by the impudent pretensions of quacks, who are ever on the alert to profit by the miseries of their fellow-creatures.

This disease occurs in two stages, the occult, and ulcerative; the former is also frequently denominated schirrus; but as that term merely signifies induration, and the term being sometimes indiscriminately applied to hard tumours of any kind, malignant or otherwise, has led to considerable confusion, and had therefore better be dismissed. The occult is the incipient stage of cancer; there is generally a small tumour of stony hardness, which at first is movable and defined; in this state it may remain without any painful symptoms, until these are lighted up by some adventitious cause, as a blow, or bruise, &c., or by constitutional causes, as the cessation of the menses in females, at which period of life cancer is most common, when from any cause, irritation is set up, the disease proceeds with amazing activity. It attacks all textures of the body, but most frequently, perhaps, the breast of the female; and that may, therefore, be taken as a good example of the progress of the disease. A hard movable tumour is felt. There is generally severe lancenating pains, like that of passing sharp instruments into the part, there is frequently diminished size of the

breast, owing to the absorption of the surrounding fat. The nipple is retracted, and the integuments appear stretched and discoloured, with large tortuous veins ramifying over the surface of the tumour. When the disease is left unmolested, the second or ulcerative stage commences. The integuments become thin, and finally give way, from being involved in the diseased action; the ulcerated point gradually enlarges; the edges are ragged, and everted, and callous; the sore looks irritable, with a grayish slough in the centre, and there is a thin ichorous discharge; the surrounding integuments are of a dusky red. There is little or no attempt at reparation; the granulations, when any appear, being gray, and hard, and endowed with but little vitality, and present somewhat the appearance of a fungus. As the ulceration extends, the discharge becomes profuse, and horribly offensive, the surrounding tissues become involved, and the affection spreads along the absorbents to the neighbouring glands. There is not unfrequently profuse bleeding from the ulcerated part, and the constitution of the patient soon sinks beneath it, and death comes as a relief from hopeless suffering.

The cancerous tumour, when cut into, communicates a grating sensation, as if cutting gristle: its section presents a central nucleus, from which dense ligamentous bands proceed in a radiated manner; between these bands the intermediate spaces are filled up by a grayish dense substance. In the advanced stage, this substance is broken down, and its place supplied by a glairy turbid semifluid substance, or blood; the tissues most frequently attacked by cancer, are the cutaneous, glandular, and mucous; and the organs which are most frequently the seat of this disease, are the mammary gland, now taken for our example in describing it, the womb, the pyloric end of the stomach, and the lips.

Treatment. There is but one effectual remedy for this disease, and that is its early and complete removal by the knife, before the absorbent glands and constitution have become affected; but too frequently patients will not submit to this until it is too late, or until they have increased the malignancy of the disease, by applying all kinds of nostrums and quack remedies; then, indeed, little can be done, save to alleviate the painful symptoms, &c., by the exhibition of alterative and tonic medicines, to improve the state of the constitution. The best local application is the hemlock poultice, or common poultice, containing a small quantity of dissolved opium, with anodynes, to procure rest at night; but even where ulceration has commenced, if we find that the glands are not extensively diseased, or in other words, if we think that it is possible to remove all the apparent disease, then an operation is still admissible; for even supposing the constitution to be contaminated, still we prolong life. Sometimes for several years we diminish suffering, for the pain of the operation is as nothing in comparison with that of the disease; and there are instances of persons submitting to the operation four or five different times, at intervals of two, three, and four years, and so prolonging their lives till an advanced age. Where the disease is very extensive, and more than one organ seemingly affected, of course an operation is out of the question. The diet throughout, should be light and nourishing, but unstimulating. With regard to the various local remedies, sometimes so highly vaunted, such as arsenic, caustics, and pressure, &c., few words will suffice,—they are worse than useless, they can never eradicate, they always irritate the disease.

CANILLA BARK, or CANILLA ALBA, or the *Cortex Canillæ Albæ*. The tree which produces this bark grows in the West Indies and in America. There is another species of tree which was found in the straits of Magellan, by admiral Winter, which produces a somewhat similar bark, which is called Winter's Bark; but the true Winter's bark is seldom met with in the market. The Canilla bark has an aromatic odour, a pungent taste, a starchy fracture, and is imported in yellowish-gray flattish pieces. It possesses stimulant properties, which it partly gives out to water, and imparts entirely to proof spirit. It is administered in substance in the form of powder, in doses of ten grains to a scruple, and in infusion and tincture, in conjunction with bitters, tonics, stomachics, and carminatives, and is an ingredient in the compound tincture of gentian of the Edinburgh Pharmacopeia, and the aloetic wine of the London Pharmacopeia.

The same remarks apply to Winter's bark, which is, indeed, considered superior when it can be procured, and was conceived to possess antiscorbutic properties, as the crew of admiral Winter's ship were greatly benefitted by its use when they first discovered it in the straits of Magellan.

CANTHARIDES, or SPANISH FLY. *Cantharis Vesicatorius. Lytta Vesicatoria.* Cantharides are insects of the beetle kind, of a bright green or golden colour, with strong peculiar odour. When reduced to powder they form the principal ingredient of blistering plaster, and their use in that form has been already fully detailed under the article on *Blisters.* They are likewise used in medicine internally, as they exert great influence over the urinary and genital organs, and are often very efficacious in cases of obstinate gleets, fluor albus, or whites in females, and cases of paralysis of the bladder, or incontinence of urine. But the internal use of cantharides must be employed with great caution, as an overdose sometimes induces

violent and even fatal effects. The most manageable form of prescribing them is the tincture; beginning with ten or fifteen drops as a dose, twice a-day, which may be continued for some days, gradually increasing the dose by one or two drops until it amounts to forty drops; but the medicine must be withdrawn whenever the patient complains of pain and heat in making water. The best vehicle for this medicine is a little thick barley water, and it may be combined with a little camphor mixture, which somewhat assists in preventing its unpleasant effects. Unhappily some of the peculiar effects of this medicine have induced the unthinking or evil-disposed to administer it internally, in large doses, either as an ill-timed frolic, or from baser motives, and it has sometimes proved fatal. The symptoms of poisoning from an over-dose of cantharides, particularly when given in substance, are violent burning pain in the throat and stomach, continued retching, frequent and copious stools, generally bloody, violent abdominal pains and convulsions, sometimes accompanied by a horror of liquids, as in hydrophobia, together with its peculiar effects on the urinary organs, as strangury, frequent discharges of bloody urine, &c.

The treatment for poisoning from cantharides consists of free depletion, warm baths, mucilaginous drinks, and the exhibition of opium. Camphor used internally, by the mouth, or by injection, and combined with opium or hyosciamus, and applied at the same time externally, by means of friction, to the groins and armpits, has been found of the greatest service; and when used in the form of injection, the camphor should be suspended, and four ounces of barley water, and from fifty to sixty drops of laudanum added. When given by the mouth, it may be made into the form of a pill, containing one grain of camphor, and two grains of hyosciamus extract. The injection, however, is the preferable form. Oils and other fatty substances are found to increase the activity of this poison, and ought therefore to be avoided. Tincture of cantharides is also used in medicine in combination with tincture of soap, or other liniments, as an external rubifacient, or stimulating liniment, in cases of rheumatism, sore throats, &c.

CAPERS; the unexpanded buds of the *Capparis Spinosa*, which grows abundantly in Spain, Italy, and the South of France. When pickled with salt and vinegar, they are used as a condiment with animal food, and like other vegetable pickles, possess antiscorbutic properties.

CAPSICUM, OR CAPSICUM BERRIES, or the *Capsia Annies Fructus*, or Cayenne Pepper. The capsicum, sometimes also called the Guinea pepper, and in the West Indies the Bird pepper, is a beautiful annual plant, cultivated in our gardens, and ripens its red pods in September and October. They have a very hot biting aromatic taste, and a pungent aromatic odour, and are possessed of powerful, stimulant, tonic, and rubifacient properties. The only officinal preparation is the tincture, seeing the berries give out their properties both to plain and ethereal spirits.

Tincture of Capsicum.

Capsicum berries, in coarse powders, half an ounce.
Proof Spirits, one pint.
Macerate for seven days, and strain or filter.

This tincture is too hot to be taken alone, but is administered in doses of from half a dram to two drams, or even more, in water or any other suitable vehicle. It is employed as a stimulant in cases of great debility, most generally in conjunction with other medicines, in the low stages of typhus, scarlet, and other fevers. A vinegar made in the same proportions as the tincture only substituting proof vinegar for proof spirits, may be formed into an excellent gargle in malignant sore throats.

The powder, mixed with crumbs of bread, and beat into a poultaceous consistence with vinegar, is sometimes used as a stimulating cataplasm or counterirritant; or the bread may be moistened with the capsicum vinegar, and used for the same purposes.

Cayenne pepper, when genuine, is certainly a most useful condiment, and even no trifling addition to the Materia Medica. We are sorry to state that it is very frequently adulterated. Pickled capsicum, in moderation, as well as the vinegar in which they are preserved, may be occasionally used by dyspeptics of cold phlegmatic habits, with advantage; and both the pickled pods and vinegar may be turned to good account, on an emergency, as a powerful rubifacient, and counterirritant. The vinegar of the pickle is much stronger than that usually prepared. If about two ounces is poured into a cup, and the cup placed in warm water till the vinegar acquires a blood heat, a small soft sponge dipped in the vinegar thus prepared, may be gently and smoothly passed over the whole body, especially the spine, chest, and stomach; and it will be frequently found of vast importance in cases of typhus, when the patient is sunk to the lowest degree of weakness. We have used it in several cases of this description, and likewise in others of a very different description, with the very best effects. It produces a prickly sensation, attendant sometimes with a crop of small pimples, or an appearance similar to the stings of nettles.

CARBUNCLE. Carbuncle is a species of boil, but differs considerably from that disease both in its form and the severity of the constitutional symptoms which attend it. It usually attacks those persons whose constitutions are broken down either by long residence in tropical climates, by intemperance, or from disease,

more particularly derangements of the digestive organs. It commences generally like a small pimple, which gradually extends both in depth and circumference, until it forms a large flattened tumour, with a broad base. The seat of the disease is in the cellular tissue, which, suffering from the unhealthy inflammation, soon dies, forming a large slough, or, as it is called, the 'core' of the tumour. The integuments are at first of a bright red colour, which gradually changes to a deep reddish-brown hue. The pain is severe and burning. The process of suppuration is slow, and the matter formed is small in quantity and unhealthy in appearance; being generally thin and sanious, mixed with whitish flakes. If the tumour is left to itself, ulceration commences at various points, producing a sievelike appearance of its surface, and through these small apertures, the unhealthy matter is discharged, causing excoriation of the neighbouring parts, whilst the slough of cellular tissue being retained, keeps up the irritation. Carbuncles differ in size from that of a chestnut to the diameter of a breakfast plate, and sometimes even larger, and if not interfered with, they frequently produce sloughing of the deeper seated parts to a great extent.

The constitutional symptoms attending this complaint are of a low or debilitated character. These are first shiverings, profuse sweats, nausea, vomiting, diarrhea, loss of appetite, and flatulence, difficult respiration, pale white tongue, or it is sometimes brown and dry, low rapid pulse, headache, pale or turbid urine, and, in severe cases, delirium supervenes.

Prognosis. In old or exhausted patients the prognosis is unfavourable, as also when it occurs in the face or head, where it generally proves fatal. The prognosis is favourable when it occurs in persons under forty, where there is no organic disease, where the tumour is small and the local inflammation more acute, where the pulse continues of good strength, and where the patient is of temperate habits.

Treatment. The local treatment consists in applying yeast, or bread and water poultices, to the part, and in making a free crucial incision through the tumour whenever it feels soft or boggy: by means of such an incision, the dead cellular tissue can be squeezed out, or if, after poulticing it, the slough is found adherent, it may be destroyed, by the application of caustic potash, and the neighbouring parts will also be thus excited to increased action, so as to throw it off. Poultices are then to be applied for a day or two, followed by stimulating dressings, such as resinous ointment, either alone or combined with spirit of turpentine. Unhealthy granulations must be destroyed if they appear, and the various means adopted in healing ulcers employed, according to general principles, and the appearance of the particular sore.

The constitutional treatment is to restore the digestive organs to their healthy action, by the exhibition of tonics and alterative medicine, such as an occasional dose of Plummer's pill, followed by a course of bitters, such as gentian and cinchona, or the oxide of bismuth, combined with columba, and quinine, and the powers of the constitution must be still farther supported in cases where there is great debility, by the exhibition of wine or other stimulants.

Carbuncle is one of the symptoms of the worst form of plague, as it occurs in Egypt and other hot climates.

CARBON. Carbon or charcoal, is obtained by burning wood until it is completely charred. During this process, carbureted hydrogen gas and watery vapour are given off; the former produced by the union of hydrogen and carbon, and the latter, by the union of hydrogen and oxygen, existing in the wood; and there is also disengaged a quantity of impure acid, pyroligneous, which, by distillation, yields acetic acid. Charcoal, thus prepared, is light and porous, and retains the form of the wood from which it was obtained. Carbon is a simple substance, that is to say, it is one of those substances which has never yet been decomposed, and, therefore, must be accounted as such in the present state of chemical knowledge. Charcoal prevents or retards putrefaction of animal substances, and is used for that purpose, in some diseases of a putrid nature, in the composition of poultices for gangrenous ulcers, and principally as a tooth powder. The experiments of chemists have proved that the diamond, as well as charcoal, is pure carbon, differing merely in the aggregation of its particles, both yielding the same product when burnt in oxygen gas, viz. carbonic acid.

When water has become putrid, it can be purified by filtering it through charcoal, and this is often resorted to during long voyages. A quantity of charcoal in powder, is put into the cask, which is shaken for some time, and then the powder is allowed to subside; when the water may be drawn off pure. A better plan, however, is the one now generally used, which consists in charring the inside of the cask. Malt liquor can also be deprived of the disagreeable flavour which it usually has when recently prepared, by the same means. Carbon is a bad conductor of heat, and is a supporter of combustion. For the bad effects sometimes resulting from charcoal fumes, see *Carbonic Acid.*

CARBONATES, are compounds of carbonic acid, with earthy or alkaline bases, or metallic oxides. Such are the carbonates of magnesia, soda, iron, &c.

CARBONIC ACID. When carbon is ignited in oxygen gas, the oxygen disappears, and the product is a gas equally colourless, but of very different qualities; this is carbonic acid.

It was first discovered by Dr Black, who gave it the name of fixed air. It has also been termed mephitic acid, on account of its proving noxious to animal life; but the name now given to it, carbonic acid, is preferable, as pointing out its ingredients, viz. carbon and oxygen. The proportions of its component parts are,

Carbon,	28
Oxygen,	72

Its specific gravity is much greater than atmospheric air, and it is unfit for respiration; and even when considerably diluted with atmospheric air, can only be breathed for a very short time with impunity, and it is also incapable of supporting combustion. When subjected to great pressure, it becomes fluid; and Mr Kemp, of Edinburgh, has lately succeeded in procuring it in a solid form. Though it may be procured by burning charcoal in oxygen, as we have already stated; it is generally obtained by decomposing some of the carbonates, or compounds, of which it forms component parts; that most generally used is the carbonate of lime, or chalk; by pouring diluted muriatic or sulphuric acid on this, the acid combines with the lime, forming a neutral salt, sulphate of lime, whilst the carbonic acid gas is set free. Carbonic acid is used in medicine principally in the form of aerated waters, as soda and magnesia waters, which are useful in allaying irritability of the stomach, and vomiting, and form an excellent and refreshing beverage, when given in small quantities in fever, either simple or mixed with a little lemon juice; effervescing draughts can also be readily formed, by means of adding a solution of tartaric or citric acid to a solution of carbonate of soda.

But what we would principally direct attention to, is the noxious effect of this gas on animal life; for it is this gas which arises when charcoal or wood is burnt in ill ventilated rooms, also in breweries, and other places where fermentation is going on, as it is then extricated in profusion from the fermented vegetable juices; and it is likewise given off in large quantities during the burning of limestone, and from its weight being greater than atmospheric air, it does not rise easily, so that fatal results have happened from persons sleeping beside limekilns. And carbonic acid, procured by burning charcoal in close rooms, has lately become the fashionable mode of committing suicide in Paris, and other parts of the continent.

When this gas is inspired, there is first a slight feeling of debility, succeeded by giddiness, and a glow of heat over the face, insensibility gradually supervenes with stertorous breathing, and symptoms of apoplexy; there is foaming at the mouth, livid appearance of the face and neck, and a turgid state of the veins, in fact all the symptoms of suffocation.

The treatment must be speedily employed, and consists in removing the patient into a purer atmosphere, and compressing the chest, so as to expel the noxious gas, which, from its weight, would not otherwise escape easily. Blood should be drawn from the veins of the arm or neck, and cold water dashed on the face, and applied to the head, and artificial respiration kept up after expelling the noxious air as before directed. Sinapisms should be applied to the pit of the stomach, and the feet, and a stimulating turpentine injection administered.

As carbonic acid is largely absorbed by lime-water, that liquid is used for the purpose of purifying the atmosphere in confined situations from carbonic acid, by pouring the lime water from one vessel into another from a height, and in a broken stream; and from this we also learn the necessity of keeping lime water firmly corked when wanted for medical purposes, as it would otherwise attract carbonic acid from the atmosphere.

CARDAMOM SEEDS, or LESSER CARDAMOM SEEDS. These are small brown angular seeds of an aromatic grateful taste and smell, contained in short triangular pods or seed vessels of a light cream-colour. They are brought from the East Indies, and are carminative and stomachic. In powder, combined with rhubarb and magnesia, they are sometimes given in the flatulent or windy colic of children, or alone in doses of from five to ten grains. They are, however, chiefly employed to communicate warmth to other medicines, and for this purpose enter into the composition of various bitter and purgative tinctures, infusions, pills, and powders. They are frequently mixed with another and cheaper seed, called the grains of paradise, which are hotter, although not so aromatic as the cardamoms. The grains of paradise are a little larger, and of a more round shape. They should be kept in the husks or pods, as they will otherwise lose their fine aromatic flavour.

Two or three drams of the compound tincture of cardamoms, added to a solution of epsom salts, greatly improve the taste, colour, and flavour of the draught, and for these purposes it is extensively employed, especially by the London apothecaries.

CARMINATIVES. Those substances which allay pain, and dispel wind or flatulence in the stomach and bowels, are called carminatives. The action of carminatives is immediate, and often powerful, but always transient; so that in order to procure any permanent benefit, they must be often repeated. Indeed they derive their name from their speedy effect on the system, as practitioners, in ancient times, ascribed their operation to a charm or enchantment, as they frequently did to the repetition of certain verses or stanzas; hence the word Carmen, a verse or charm.

Among the carminatives, we may include anise, carraway, cardamom, and coriander seeds; sweet fennel, peppermint, and their essential oils; also most of the stimulants in moderate doses, and especially the aromatic spices, as carmammon, ginger, black and long pepper, pimento, nutmeg, &c.

CARRAGAHEEN, or IRISH MOSS, or *Crispus Fucus*. This fucus grows in great abundance on the coasts of Ireland, especially on the north coast of the bay of Donegal, from Kellybegs to Glenhead; and on the coast of several of the western islands of Scotland, in several parts of the English coast, on the shores of the Atlantic, and of France, Spain, and Portugal.

Were the peasantry on the west coast of Ireland to devote a little more attention than they now do, to the collection and preparation of this fucus, and some others nearly allied in alimentary properties, they would not only be adding to their own comfort and means of subsistence, but conferring a benefit on society. The careless way in which this fucus is prepared for the market, has raised an ill-founded prejudice against it. It should be bleached on the grass, or in other words, left exposed after it is gathered, till it assume a white or cream colour, and then it should be gradually dried. By those means it is deprived of its bitter saline taste more effectually, than it is by submitting it to a second or third boiling. In its fresh state it is of a darkish green colour, and contains a very small portion of the muriate, but a considerable quantity of the sulphate of soda, although we are not aware of it yet being subjected to any thing like a correct analysis.

Few articles of diet are better suited for the aged, the asthmatic, the nervous, and the bilious invalid. Neither is it, or at least it ought not to be, an expensive article, for a very small quantity will form a large basin of fine and almost transparent jelly, free from any disagreeable taste or flavour, which requires no other seasoning but a little refined sugar, whether it is boiled in sweet milk, or in equal parts of milk and water, or in water alone. Some prefer the addition of a glass of wine, and others, that they may have it combined with a very small portion of prussic acid, add a few drops of the water or essence of bitter almonds; and in cases of asthmatic cough, there can be no objections to this when the dose is properly regulated.

The best method of preparing it for use, is to put one ounce of the dried moss in half a pint of cold water; place them in a sauce-pan on the fire, and when the water begins to boil, remove it from the fire, and decant the water off the moss. Then add two gills of sweet milk, and one gill of cold water; place it again on the fire, and keep stirring, that the jelly may not adhere to the sauce-pan. When it has boiled to a proper consistence, we add one ounce of refined sugar, and allow it to boil another two minutes till the sugar is dissolved. It may then be removed from the fire, and, while yet hot and boiling, strained through a search or fine thin linen, or coarse lawn cloth. It is now ready for use; but to stomachs accustomed to a more generous stimulant, a glass of wine, say port, or sherry, or Madeira, and two drops of essence of cinnamon may be added. Or one single bitter almond (in no case more) may be blanched or peeled, and bruised in a stone mortar along with the sugar, and put in the sauce-pan two minutes before it is removed from the fire. A greater or less quantity may be prepared at one time; but if the fucus has been gathered in proper season, few invalids will wish for more than one or two ounces. The fire should always be clear and without smoke. One ounce of dried moss will do for an imperial half pint of milk, or milk and water, although some think the jelly, in this proportion, too thick.

We do not know a case in which this jelly, without the wine, could do any harm; but in all cases of diarrhea, dysentery, and affections of the stomach and bowels, it has few equals as an article of diet. It is tonic without irritating, and demulcent and expectorant without exciting nausea, and, in conjunction with other fuci, it will assist in removing strumous affections and bronchocele, with less speed, but with as much certainty, and far less danger, than iodine or any of its preparations.

We only wish we could induce our Highland and Irish friends to afford a better supply, and let it obtain a place in every grocer's shop, as an article of diet equal, nay, superior to many others, now too freely used by all classes.

CARRON OIL. As this preparation is so well known, and so deservedly popular, under this name, we give the formula here, rather than under either the article Linseed Oil, or Lime-Water, although it is an officinal preparation ordered by the colleges, under the name of the Liniment of Lime, or Liniment of Lime-water.

It is simply prepared by mixing together, or shaking well together in a bottle, equal parts of fresh linseed oil and lime-water. This combination forms a saponacious white bland fluid, produced by the mutual chemical action of the lime-water and oil, and has been long regarded as a soothing application to inflamed surfaces, especially to burns and scalds. When used for this latter purpose, rags, well moistened with the liniment, should be applied, and never allowed to dry, but kept constantly in a moist state. Cold drawn linseed oil is always to be preferred, and old or rancid oil rejected. As, on keeping, the ingredients are apt to separate, the bottle should always be shaken before the oil or liniment is decanted.

CARROT. This well known vegetable

requires no description here. Carrots contain a considerable quantity of saccharine matter, and an empyreumatic oil; like other succulent vegetables they possess antiscorbutic qualities, and are, on that account, frequently preserved as sea-stores. They form a good article of diet along with animal food, particularly when it is salt; but are improper for those persons who suffer from indigestion and flatulence, and they ought always to be exceedingly well boiled. Carrots also form a good stimulating poultice for gangrenous or foul sores.

CARTILAGE, OR CARTILAGINOUS SYSTEM, OR GRISTLE. Under this head we intend to describe two tissues, which somewhat resemble each other. These are cartilage, and fibro-cartilage

Cartilage is a dense, solid, and highly elastic tissue, and by its elasticity, resumes its original form and position, when any compressing force to which it has been exposed is removed. Its colour is a silvery white, and it is so dense, that all trace of its being a modification of the cellular tissue is entirely lost. Its chemical composition is supposed to be albumen, with a small quantity of phosphate of lime, and contains a considerable quantity of water, from which circumstance it soon dries on exposure to air, becoming yellow, shrivelled, and semi-transparent. By the action of boiling water it is converted into a jelly.

In the fœtus the different pieces of the skeleton are cartilaginous; but ossific matter becomes deposited, and gradually supplants the cartilage; such cartilages are termed temporary. The articulating ends of bones are encrusted with a layer of cartilage, which both renders their surface smooth, and thereby more fitted for motion; but also from its elasticity, lessens the effects of concussion of the part; the cartilages attached to the ribs, form so many prolongations of them towards the breast-bone, thus completing the arch from the spine to the sternum, and at the same time, by means of their elasticity, enabling the ribs to resume their original position, after they have been elevated during inspiration.

Fibro-cartilage is a structure intermediate between the fibrous tissue and cartilage, and possessing the qualities of both conjoined, viz. firmness and elasticity. As it serves many different purposes in the animal economy, so we find it to vary much in appearance and form; thus we have it in a laminated form, as in the cartilages of the larynx, whilst in the trachea it presents the form of a series of rings. The various interarticular cartilages, as they are called, which serve the purposes in some cases of connecting bones to each other, as at the symphisis pubis, or which serve to prevent a jarring motion in the movable joints, are composed of fibro-cartilage.

CASSIA PULP. This pulp is the product of the *Cassia Fistula*, a native tree of the East Indies, and has been long since introduced into the West Indies. It is a tall tree, from thirty to forty feet in height, not unlike the walnut tree, and produces cylindrical ligneous fruit, or pods, as they are called, from one to two feet long, and seldom exceeding an inch in diameter, and externally of a blackish brown colour. The legumes or pods are internally divided into numerous cells, by thin partitions, and in each cell is one seed, with a soft blackish pulp, which appears to be a secretion of the internal lining of the pod. There is a smaller variety of cassia pods brought from America, the pulp of which has a reddish-brown colour, and an acrid sweetish astringent taste.

The pulp is ordered to be prepared by pouring boiling water on the bruised pods, that the pulp may be washed out; this is to be pressed through a coarse sieve, or cloth, afterwards through a hair sieve, and evaporated in a water bath until the pulp acquires a proper consistence. The heaviest pods, and those which do not rattle when shaken, produce the most pulp, a pound of the pods yielding about seven ounces.

The pulp is black, bright, shining, sweet and highly acrid and inodorous, and its acidity is increased by exposure to air, as by that means the acidous fermentation is induced. It is a mild laxative, and useful in inflammatory affections, to keep the bowels open, and a very commodious medicine for children and delicate females, although, if not fresh, it sometimes causes colic and flatulency. The dose is from five drams to an ounce.

CASTOR OR CASTOREUM. This peculiar substance is found in bags near the rectum of the *Castor Fiber* or beaver. It is of an orange-brown colour, and peculiar strong unpleasant odour, and a bitter sub-acrid taste. Its constituents are the carbonates of ammonia, iron, lime, and potash, with resin, mucilaginous extractive matter, and a volatile oil. There are two kinds to be met with in the market, the Russian and the Canadian, but the former is preferred to the latter. This substance has been long celebrated as a medicine possessing strong antispasmodic and emenagogue properties, and is prescribed in amenorrhœa, epilepsy, hysteria, and even sometimes in typhus.

It is given in substance, in the form of pills, or bolus, in doses of from ten grains to a scruple, and it is also sometimes administered in the form of enema, being suspended in mucilage of gum arabic. There is a simple and compound tincture ordered by the colleges.

Simple Tincture.

Castor bruised or cut small, one ounce.
Rectified Spirit, one pint
Macerate for seven days, and decant off the pure tincture.

Compound Tincture.

Castor bruised, one ounce.
Assafetida, half an ounce.
Spirit of ammonia, or ammoniated alcohol, one pint.
Macerate for seven days and decant off the tincture.

Both these tinctures are tonic and antispasmodic, and are prescribed in hysteria and other nervous affections, in doses of from thirty to forty drops, or more. The latter is the most powerful, and most commonly used.

CASTOR OIL is obtained from the seeds or berries of the *Ricinus Communis*, a plant of the class and order *Monacia Monandria*, and of the natural order of this the *Euphorbia*. This plant is a native in many tropical districts, although it has long been cultivated in Britain, and especially in the neighbourhood of London, where the plant occasionally grows to a state of great perfection. The seed or berry which yields the oil, is inodorous, with a slightly sweetish acrid taste; the kernel is white, oily, with a thin skin, or cuticle, contained in a prickly triangular capsule.

There are several methods of obtaining the oil, which have of late been greatly improved; but when we employ it as an enema, we prefer the darker or browner coloured oil, obtained by heat and great pressure, as it acts on the bowels with more certainty, although it is not so agreeable to the stomach. The cold drawn fresh oil is to be preferred either in cases where it is swallowed alone or made into an emulsion.

Castor oil is very extensively employed, and owing to its having been lately reduced in price its use is increasing. It is well known as a safe and efficacious laxative, in doses of from half an ounce to an ounce and a half, and it appears to act without producing any irritation or stimulating effect. It is peculiarly valuable in inflammatory affections, especially those of the alimentary canal itself, in the puerperal state, and in all conditions of the system, where excitement would be improper; nay, it is often given as a first physic to an infant, in the dose of a tea spoonfull. The only objection to its use is the nausea which is caused by it, as this is frequently so considerable as almost to prevent its employment, while its very appearance, as a medicine, fills some nervous patients with an unreasonable disgust.

The oil, when recently drawn, is inodorous, nearly insipid, colourless, or of a very pale straw colour, thick, but perfectly transparent, and lighter than water.

It becomes soon rancid by keeping, thickens and deepens in colour to a reddish brown, and has a hot nauseous taste; indeed, these latter were almost the characteristics of the West India oil, even when newly imported, and either the old oil, or the hot drawn West India oil (almost out of fashion) should be employed, as we have already stated, for enemas, as they operate with more certainty than the mild fresh oil, but let it be always remembered that they should in no case be introduced into the stomach.

Castor oil is sometimes administered alone, or floating on the top of a little cinnamon or peppermint water. Instead of these preparations, others employ spirits of some kind, such as brandy, whisky, rum, or gin, but the oil being heavier than the spirits, sinks and adheres to the sides of the cup or glass, and in almost every case, the spirits of every kind is a very improper vehicle for the oil in those diseases for which it is administered. Ginger tea, or the aromatic simple waters, such as we have named, are the best vehicles in which the oil can be taken. If, however, spirits are used, they should be shaken in a vial, along with the oil, emptied out in a wine glass, and swallowed before time is allowed them to separate. In cases of Colica Pictonum, or even dry colic, one ounce of the oil, and half an ounce of the compound tincture of senna or rhubarb, may be so shaken together, as a purgative draught. The oil may likewise be administered in the form of emulsion, which, if properly prepared, is an elegant medicine.

Castor Oil Emulsion.

Castor oil, one ounce.
Yolk of an egg.
Refined sugar, half an ounce;
Cinnamon or peppermint water, half an ounce.

Rub the yolk of the egg and sugar in a stone or glass mortar, gradually adding the oil in very small quantities, at the same time continuing the rubbing, and when the egg, sugar, and oil are intimately incorporated, gradually add the water, continuing the rubbing till a fine white emulsion is formed.

This emulsion is a very agreeable medicine, and children and even adults, who obstinately refuse the oil, will take this. Its constituents should be concealed, and it may be called cinnamon or peppermint cream. When either of these medicated waters are objected to, plain rain or river water may be substituted without destroying the agreeableness of the emulsion.

CATALEPSY. This disease is characterised by a sudden suppression of motion and sensation; the body remaining in the same posture in which it was when seized.

Women are more frequently attacked by this disease than men, and it sometimes changes into epilepsy, apoplexy, or melancholy, and has occasionally been known to terminate fatally in a few days.

Various causes have been assigned, mostly general, and seldom or never appear to be of a local nature, although a peculiar state of the uterine organs may have a considerable share in its production; as suppressed menses and worms have been said, in conjunction with violent mental emotions, to be very common exciting causes of the cataleptic state.

No less an authority than Dr Cullen says, that he never saw this disease except when counterfeited, and is of opinion, that many of those cases related by other authors have also been feigned. It comes on suddenly, being only preceded by some languor of body, and returns by paroxysms. The patients are for from ten to twenty minutes deprived of their senses and

all power of voluntary motion, and sometimes remain in that state for hours. They constantly retain the position in which they were first seized, whether lying or sitting, and if the limbs be put into any posture during the fit, they preserve the position in which they are placed. When the paroxysm is over, the patient has no recollection of what has transpired during it, but resembles a person newly wakened out of his sleep.

The *treatment* is to be regulated by the occasional cause, when it can be discovered. In young healthy subjects a large mustard plaster may be placed over the chest.

If there be any apoplectic symptoms, bleeding may be resorted to, and if the patient can swallow, a tea spoonfull of the volatile or ammoniated tincture of assafœtida may be given in a large wine glass of cold water. If the cause is well ascertained, after the paroxysm, the disease is to be treated accordingly.

As this disease is not unfrequently simulated or feigned, not only by sailors or soldiers, but likewise by capricious females, and even sometimes by males in civil life, often to the great pain and annoyance of relatives, it is right that friends and domestic practitioners should be on their guard.

In most cases, the poultice we have recommended will soon bring even the most obstinate and dogged to their feelings in less than an hour. Impostors may, however, generally be detected by considering the circumstances in which it is observed, and the kind of persons that are affected, and partly by artifice. Dr Copland recommends, like ourselves, the use of powerful stimulants, and, moreover, letting fall a drop or two of very hot or very cold fluid on the skin of the patient's neck. Proposing the actual cautery while the pulse is being felt, and marking the effect, and suspending to the hand which has been stretched out a small weight attached to a string, which should be imperceptibly snapped, and observing whether or not the arm be suddenly thrown up, are likewise usual means of detection. The last method was resorted to by John Hunter, in St George's hospital.

It is always painful for an ingenuous mind to suspect even the slightest attempt at imposition by simulating or feigning diseases. But as this disease has been feigned previous to, and even since the days of Cullen, the means of treatment we have recommended, will not only benefit the patient of a real victim, but will be sure to detect an impostor, as few will be found foolhardy enough to allow a mustard cataplasm to remain on for longer than half an hour without insisting on its removal.

If, however, the patient is a real sufferer from cataleptic symptoms, if a female, it is ten to one but the cause will be found in some uterine irregularity, or mental alienation, or worms, especially the small thread worm. In that case ample instructions for the treatment of either of these affections, or whether one or all combined, of which the catalepsy is only symptomatic, will be found under their respective designations.

CATAPLASM. See *Appendix.*

CATARACT has been technically described as a partial or general opacity of the crystalline lens, or of its capsule, or of the fluid which intervenes between them, or of all these taken together. The existence of the disease, therefore, is denoted by the presence of an opaque substance behind the pupil, and by an impediment to vision, corresponding to the degree and to the extent of the opacity.

The first symptom of this disease of the eye, is commonly dimness of sight, which generally continues a considerable time before any opacity can be perceived in the lens, which becomes more sensible as the disease advances, and the patient imagines there are particles of dust or motes upon the eye or in the air. The opacity gradually continues to increase, till the patient either becomes entirely blind, or can merely distinguish light from darkness. The disease may either come on rapidly, or its progress may be slow and gradual. The opacity in cataract is situated immediately behind the pupil, or at all events, at a very short interval from it; and it is easily seen, whether we look at the patient's eye direct or side-ways, when, as in other diseases of the eye, the opacity is deep seated at the bottom of the globe of the eye, and it is necessary to look directly into the pupil before the opacity is seen. The colour of the opacity in cataract is a grayish whitish, or of a light yellowish brown, like that of amber; while in the disease called glaucoma, the opaque appearance of the pupil is green, or a dull dirty green, or a yellowish green, and sometimes even a brightish yellow green; and in amaurosis it is either of a dull leaden, or something of a dark livid hue or greenish colour. The tint, however, is not in itself a sufficient distinction between cataract and other affections, and is only a circumstance that will assist in forming a diagnosis in conjunction with other points.

On this disease it is, however, useless to enlarge in a work of this description, as no time should be lost in applying to an experienced surgeon, of which, happily, there is now no scarcity in almost every city and great town in these kingdoms.

As to the treatment, little can be done by the domestic practitioner. Before, however, access can be had to an oculist, a seton may be opened in the nape of the neck, and a compound calomel pill taken every night at bedtime, followed by bitter tonics, and the occasional use of some gentle laxative, and a mild unstimulating diet.

Dropping a solution of the extract of bella-

donna (of the strength of a dram to the ounce of water) into the eye, or rubbing some of the extract over the eyebrows, either alone or combined with hyosciamus, will be found to improve vision considerably, and strange to say, this medicine does not soon lose its effect. The solution is the most manageable form; but no time should be lost in getting professional advice. See *Eye*.

CATARRH, OR COMMON COLD. Catarrh, properly speaking, means the inflammation of the mucous membrane, lining the bronchia, and has already been described under the name of Bronchitis; but the term is more usually applied to partial inflammation of the mucous membrane of the nostrils, frontal sinuses, accompanied with sore throat and inflammation of the upper part of the bronchial tubes, and is generally known by the term 'cold in the head and chest.'

The cause of this affection is cold applied to the body in any manner, as by exposure to wet, damp feet, sudden changes of the weather, sitting in a draught of cold air at an open window, &c.

The symptoms are slight shivering and sneezing, succeeded by heat of skin, sense of tightness and pain in forepart of head, oppression at the chest, sense of fullness and stoppage of the nose, followed by increased secretion from the nostrils, sore throat, and cough, accompanied with expectoration of mucous, or phlegm.

The treatment requires to be much the same as recommended in bronchitis, or the more violent form: namely, to reduce the feverish state of the system by means of the warm bath, antimonial diaphoretics and purgatives, and where the symptoms run high, by general or local depletion; and to allay the cough and irritation of the mucous membrane, and assist expectoration by the exhibition of squills, combined with mucilage or other demulcents given internally, and by the external application of sinapisms to the throat and upper part of chest.

CATECHU, OR THE ACACIA CATECHU, is a shrub or tree which yields the substance, imported under the different names of Catechu, extract of Catechu, Japan earth, Cutch, and sometimes Gambies, all of which are synonymous. The name, however, adopted by the colleges is Catechu or Acacia Catechu. It is imported in pieces of a reddish brown colour, possesses a degree of brittleness and friability, and has a taste which is at first sweetish, but becomes astringent, is inodorous, and slightly mucilaginous. There are different kinds of it brought to this country from the East Indies, which differ a little in their external characters, particularly the shape and size of the pieces; but which seem to resemble each other very nearly, both in their chemical and medical properties. According to the analysis of Sir H. Davy, catechu consists of about one-half its weight of tannin, and about one-third of a peculiar extract, combined with a portion of mucilage, and some extraneous substances. The extract is procured from the wood of the tree, and some kinds from the leaves, and the Acacia Catechu from the nuts.

Catechu is one of the most powerful and valuable astringents which we possess, and may be given with safety and propriety in all cases where we wish to restrain immoderate discharges, especially those from the bowels, when not attended with inflammatory action, or produced by congestion, and indeed it is a useful astringent applied topically to the mouth and fauces, by sucking it or allowing it to dissolve as a lozenge, and for this purpose the balls we have denoted may be employed in relaxed uvala, (or as it is called in Scotland, and some parts of England, the falling down of the pap of the hawse), and in that slight chronic inflammatory affection of the throat, usually denominated the relaxed sore throat, which is especially observed in delicate females. In slight ulcerations of the mouth, a bit of pure catechu allowed to dissolve in it is very useful.

It may be taken with great advantage in diarrhœas, where there is no inflammatory symptom, and where the bowels have been previously cleared out by a dose of rhubarb and calomel, or the simple castor oil emulsion.

It may be administered in substance in the form of powder, in doses of from ten to thirty or forty grains, combined with a few grains of cinnamon, or aromatic powder. The officinal preparations of catechu, are the compound electuary of catechu, and the tincture of catechu.

CATHARTICS are those medicines which, taken internally, act upon the mucous membrane of the intestines, and increase the number of alvine evacuations, or in other words, produce a purgative effect, and operate by stool. Their operation is upon the part to which they are applied, and seems most direct and obvious, yet, from the multifarious nature of the substances which compose the list, we are almost necessarily led to conclude, that they do not all act upon the same principle. Some have divided cathartics into five divisions, viz. stimulating, such as jalap, aloes, colocynth, &c.; refrigerating, as glauber, epsom and polychrist salts, and cream of tartar; astringent, as rhubarb and damask roses; emollient, as castor and olive oils, manna and mellows; and lastly, narcotic, as tobacco, henbane, and foxglove.

Murray, in his Materia Medica, considers the different cathartics under the two divisions—of laxatives and purgatives; the former being mild in their operation, and merely evacuating the contents of the intestines; the latter being more powerful, and even extending their stimulating operation to the neighbouring parts.

CATHETER. The catheter is one of the most necessary surgical instruments for those who are placed at a distance from medical aid. It is used for the purpose of drawing off urine, by introducing it into the bladder. It is a long tube having holes or eyes, as they are termed, at the sides, near the point, and quite open at the handle. Catheters are formed either of silver, or gum elastic. Those of silver are the safest, and preferable to the others, for every purpose. They differ in length and curvature according as they are intended for the male or female; the latter being much shorter than the former, and nearly straight. The male catheters are longer, more curved, and of different thickness, so as to suit particular cases. That termed the prostatic catheter, is from two to three inches longer than the ordinary male catheter, and its curve is considerably greater, so as to accommodate itself to the altered curvature of the passage, when the prostate gland is enlarged. The usual forms of these instruments will be found delineated in the plate of surgical instruments.

CATHETERISM, or the operation of introducing the catheter, is one of the greatest importance, and in cases of obstinate stricture, one of the most difficult in surgery, requiring all the skill and tact of a master. Yet, as the necessity for performing it may occur in situations where surgical aid cannot be procured, and where without its performance the patient must inevitably perish, it is an operation which all persons likely to be placed in such situations, as masters of vessels, emigrants, &c., should acquire some knowledge of, as this may be easily gained, for all ordinary purposes, by a few lessons, and frequently practising it on the dead body. The cases in which the use of the catheter becomes absolutely necessary, are the following: 1st, Retention of the urine from paralysis of the bladder, from overdistention, severe injuries of the head or spinal column, in cases of fever, dysentery, and in old persons; 2d, In retention from spasm of the sphincter muscles of the neck of the bladder, in consequence of cold or irregularities, if the spasm does not yield to other remedies; 3d, From inflammation and swelling of the parts surrounding the neck of the bladder; 4th, From stricture of the urethra; 5th, Enlarged prostate gland; 6th, From injury of or abscess in the perinæum, or near the neck of the bladder.

The catheter, before being used, ought to be heated by immersion in warm water, and then well oiled. In some patients of a very irritable constitution an opiate may be given previous to its introduction, if not contra-indicated by other circumstances. The rules we are about to lay down for this operation are few and simple, but the manual dexterity can only be acquired by practice, and it ought never to be attempted by a non-professional person, where a surgeon can be procured. The patient is to be placed with his back against the wall, if standing, or if lying in bed, his knees should be bent and drawn up and the thighs separated. The penis is then to be held lightly between the thumb and finger of the left hand, placed on each side of the glans, so as not to press on the orifice of the canal, and then the catheter, previously heated and oiled, is to be introduced with its concavity looking towards the belly, it should be passed downwards till it has reached that part termed the sinus or dilatation of the canal opposite the bulb, into which it is apt to slip; but when it arrives at that point, the hand must be gently depressed so as to elevate the point, which will then slip into the bladder. If the point encounters any obstacle it should be withdrawn a little, and the penis stretched a little forwards, and the handle again depressed between the thighs; in doing this, force is inadmissable, as laceration of the urethra might be the result. In cases of stricture requiring the use of very small catheters, and in cases of enlarged prostate gland, the forefinger of the left hand should be introduced into the lower part of the bowel, to guide the instrument in the latter part of its course. There can seldom occur any difficulty in using the female catheter, as the canal is short and nearly straight, except in cases during labour, where the child's head is low down in the pelvis, or where a tumour presses on the canal, in such cases the handle of the catheter must be depressed, to enable it to reach the bladder which is displaced.

CATSUP; a well known condiment prepared from mushrooms. That prepared from field or wild mushrooms is the best, and possesses a much finer flavour than that from mushrooms raised by artificial heat. The process is simple, and various receipts may be found in every cookery book. If, however, properly prepared, no other ingredient should enter into its composition, but mushroom-juice, salt, and pimento.

Fresh and genuine catsup is one of the best and most harmless condiments that can be used.

CAULIFLOWER is a variety of the cabbage tribe, or the *Brassica Olivacia*, of which there are several sub-varieties, and those most generally in cultivation are the following:—early, for the first early crops; later or larger, for the principal early and main crops; and third, bed cauliflower, having the stalks of the head of a reddish or purple colour, esteemed more hardy than the others, and good for an early crop.

The cauliflower is raised from seed, and in its early growth is rather tender and delicate for our northern climate, as it requires artificial means when in its young state to protect it from the weather.

It is certainly one of the most delicate and curious of the whole of the cabbage tribe, the flower buds forming a close firm cluster or head, white and delicate, for the sake of which the plant is cultivated.

Cauliflower is a very elegant, economical, and agreeable pickle, peculiarly well suited for emigrants and mariners on a long voyage, and is peculiarly adapted for eating with cold, salt, or pickled meat.

CAUSTIC, OR POTENTIAL CAUTERY, is any substance which burns or destroys parts by chemically decomposing them. The caustics principally used in practice, are, the nitrate of silver, or lunar caustic; potassa fusa, or caustic potass; sulphate of copper, or blue-stone; red precipitate of mercury, and nitric and other acids.

CAUTERY. The potential cauteries have been spoken of above. The actual cautery is either an iron heated to a white heat, or, the moxa; the irons used as cauteries are of various forms. The moxa is made of common cotton dipped in weak solution of nitre; it is then dried and rolled up into a somewhat conical shape, and encircled by a piece of card, which is secured by means of a piece of thread; when applied, it is held over the part, by being fixed in an iron wire ring with a long handle; it is then set fire to, and the ignition kept up by means of the blow-pipe or bellows, until it is entirely consumed. It should be allowed to burn very slowly, as its effect is then more powerful. The actual cautery is used principally for producing issues, destroying unhealthy parts, and in bites from rabid animals, and used formerly to be the principal means depended on for arresting bleeding before the introduction of the ligature. The method of using the actual and potential cauteries will be mentioned when treating of the diseases in which their use is indicated.

CELERY, OR APIUM GRAVEOLENS. Celery grows upon the banks of moist ditches, and even in the water throughout Britain, and is especially abundant in the most of Ireland, in its wild and uncultivated state, where it is known by the name of smullage, or water celery. In its wild state, it has certainly a considerable proportion of noxious qualities in its composition; but its rank coarse taste, especially that which grows in ditches on the moist banks, will prevent any one from indulging in eating such a quantity as will do them any harm.

Cultivation renders this rank coarse tasted plant, mild and sweet; and it not only becomes a mild and nutritious table vegetable, but is also employed as a medicinal agent.

Celery is now so generally known, as to render a description of the plant useless. The seeds of celery are stomachic, aromatic, carminative, and diuretic; and either alone, or in conjunction with other kindred seeds and herbs, form a most appropriate addition to soups.

Celery seed, either alone or mixed with a third part of parsley seed, is one of those easily acquired luxuries that emigrants and mariners may enjoy on a long voyage, as a small portion added to pea-soup two minutes before it is removed from the fire, proves a most agreeable stomachic, and antiscorbutic, which may always be acquired on reasonable terms. The seeds should be preserved in a well corked bottle.

CELLULAR TISSUE. This is one of the most important tissues in the body; for, variously modified, it constitutes the adipose, tendinous, ligamentous, serous, and synovial tissues.

If minutely examined by inflating a portion, and then drying it, it will be found to enclose or form cells of different shapes and sizes, and from this cellular structure it has derived its name. It is the first of the solids which is developed, and that which is most generally diffused; sometimes we trace it in the form of a thin layer dipping betwixt the muscles, at others forming a dense sheath for blood-vessels and other important parts, sometimes as a dense fascia, at others, loose, and containing oily matter. The cellular tissue serves to connect the different parts of the body. When air is introduced into the cellular tissue, as sometimes takes place from wounds of the chest or disease, it inflates every part of the tissue in the neighbourhood, distending it enormously, and producing a crackling sound when pressed; this is termed emphysema; this means of producing swelling is sometimes resorted to by soldiers, seamen, and others, to simulate diseases, which, if real, would disqualify them from active service, or serve the purpose of exciting the sympathy of the benevolent. The cellular tissue is frequently the seat of inflammation, and suppuration, and other diseases, which will be found treated of under their respective heads.

CERATES. Those are preparations resembling ointments, and indeed only differing from them by being of a stiffer consistence, which is derived from the quantity of wax which enters into their composition. The most important circumstance in the preparation of cerates is the freshness of the oils, lard, suet, or other fats that are employed, as rancid oils, and fats of every description, are most improper ingredients in applications to tender, abraded, or wounded surfaces.

It is likewise preferable to melt the ingredients in a water or steam bath, as when melted in a metal pot on a fire, the oil or fat is apt to get burned, and acquire not only an empyreumatic flavour, but be rendered unsuitable for the purposes for which they are intended. Small quantities of cerates or ointments may be prepared by families for domestic use, by melting the ingredients in a delft or stoneware basin adjusted to the mouth of a sauce-pan, and placed over boiling water, which is to be kept on the

fire boiling till the wax and fats in the basin are melted. By this mode of preparation, the cerate or ointment not only keeps longer, but is a more useful, pleasant, and effective application.

CHALK, OR THE CARBONATE OF LIME, or *Creta*, or *Carbonas Calcis*. Chalk, or the impure carbonate of lime, is used in medicine in two forms, viz. in the form of *Precipitated Chalk*, of the Dublin pharmacopeia, which is a very pure carbonate of lime, precipitated from a solution of the muriate of lime, by means of carbonate of soda; and second, prepared chalk, or the *Creta Preparata* of the London and Edinburgh colleges, which is only common chalk ground up with water, and freed from its grosser impurities and then dried. It is but justice, however, to state that it is this latter comparatively improved preparation that is generally met with in the shops; and so prepared, it is rendered sufficiently pure for all practical purposes. The prepared chalk is white, friable, and effervesces on the addition of acids.

Chalk has been long used in medicine internally as an antacid, and externally as an absorbent. The finely levigated or prepared powder is sprinkled over burns and other sores after the inflammation has subsided, and it greatly facilitates the formation of a new skin. It is one of the most common, and indeed safe and efficacious medicines in diarrheas attended with acidities, and is especially useful after a rhubarb purge has been prescribed. Chalk is given in the form of mixture, powder, and in combination with opium, and likewise as an alterative, in combination with mercury.

CHALK-STONES; concretions found in the joints of persons who have long been subject to gout. They consist principally of urate of soda, and phosphate of lime.

CHAMOMILE, OR ANTHEMIS NOBILIS. The flower of this indigenous herb is the part used, and, although a native, it is cultivated in the garden, and even in fields, for medical use. These flowers possess a powerful, fragrant, grateful odour, a warm bitter taste, and their virtue resides in the disc or centre of the flower. They have long been a favourite domestic medicine, and still sustain their character as an excellent stomachic and tonic bitter, a safe and easily procured emetic, and externally a mild discutient and emollient. They abound with a pungent aromatic oil, and long were, and still are, considered one of the most active of the bitters. The forms in which the flowers are employed are in powder, either alone or combined with other bitters and aromatics, in infusion, decoction, extract, and oil. The infusion is made by macerating half an ounce of the flowers, for half an hour in a pint of boiling water; this is what is usually denominated chamomile-tea, and may be taken alone, or in combination, in doses of a large wine glassful twice or thrice a-day, in cases of indigestion, hysteria, and nervous debility. This, too, is the best form in which it can be employed as an emetic, in which case a teacupful may be taken every few minutes till it operates; and it may, in the same manner, be taken to facilitate and assist the operation of other emetics. When used as a tonic, and with a view of promoting digestion, the same quantity of bruised ginger as of the flowers may be added to the boiling water, and allowed to infuse for an hour. With the addition of the ginger, the infusion becomes more warm and grateful to the stomach, and is much better suited for cold, phlegmatic habits, the aged, and especially those who have been accustomed to indulge too freely in the use of spirituous liquors. The decoction, which is used for fomentations and enemas, is made by boiling an ounce of the flowers in a pint of water for fifteen minutes. Although warm water is equally efficacious as a fomentation, when the flowers are to be had in quantity, they should be boiled for ten minutes in as much water as will cover them, and the warm moist flowers within the folds of a thin cloth applied to the pained part. Sometimes a small quantity of carraway and sweet finnel seeds, are boiled along with the flowers, when intended to be used as an enema. In forming the extract, there is no doubt the greater part of the essential oil is dissipated; bu still it is an excellent medicine, and, in consequence, has lately been very industriously advertised by a person of the name of Norton, and some others, in the form of pills, which are sold at a high price. This extract, with the addition of six drops of the oil to every dram, and as much powder of rhubarb as will form the mass into a proper consistence, may be formed into sixteen pills. These pills are certainly one of the best forms for a dyspeptic of sedentary habits, and may be taken in doses of two pills twice or thrice a-day, and are superior to many of the far-famed dinner pills sold at three times the price; they act as a stomachic and gentle aperient. The oil, when recently distilled, is of a fine cerulean blue; but when a little older, assumes a dark yellow colour. It possesses the odour of the flower with a pungent taste, and its virtues are stimulant and antispasmodic. It is used alone in doses of from five to eight drops on a bit of white sugar, in colics and cramps of the stomach, and as a corrector of purgative pills. In all cases for internal use, the single flowers are to be preferred to the double flowers. When applied in bulk as a fomentation, the latter are equally efficacious.

CHAMPAGNE. See *Wine*.

CHANCRE; the name applied to venereal sores. See *Venereal Disease*.

CHEESE is the caseous part of milk separated from the other constituents, by rennet or other means. The curd is then pressed into

some particular form, generally round, and when completely free of the whey, is taken out of the press and dried.

As an article of diet, cheese should never be used as a principal part of any meal, even by the healthy and active. It is very improper food for children, and for those of inactive sedentary habits. Toasting only renders it more heavy and indigestible.

The richer the cheese, the more nutritive and soluble; but cream cheese is very unwholesome, liable to rancidity, and hard of digestion; and the same remarks are true when applied to very poor cheese, which is fitter for the purpose of manufacturing glue, than for human food.

Cheese, however, in small quantity, is a nutritious stimulating food, especially when masticated and eaten with a due proportion of bread. It is very apt to produce costiveness, and never at all to be eaten by weak stomachs; or if it is, plenty of pepper and salt should be used with it.

Cheese, in any considerable proportion, can only be eaten with safety by the hard working man, and then celery, common or water cresses, or other salad, may be eaten along with it. Old cheese should only be regarded as a condiment.

Cheese is sometimes adulterated by the admixture of improper colouring matter, and to produce the greenness so much admired by some in old cheese, pins are often struck in it, or brass wire drawn through it, when a poisonous substance of a green colour, similar to verdegris, is produced, communicating the appearance of old cheese to that which is comparatively new.

New cheese is very indigestible food, being nothing but hard curd, which the powers of the stomach can scarcely dissolve.

CHELTENHAM SALTS. Artificial Cheltenham salts, and a most agreeable saline purge, may be made as follow:

Sulphate of Soda, (Glauber Salts) 120 grains.
Sulphate Magnesia, (Epsom Salts) 66 grains.
Muriate of Soda, (Common Salt) 10 grains.
Sulphate of Iron, 1 grain.

These form a good purgative solution in the proportions of the above for a dose, if dissolved in a pint of water. Or if greater quantities are taken of the above articles in the same proportions, and dissolved in twice their weight of water and strained, the solution may be set aside to form crystals, which may be afterwards dried on blotting paper, and kept in well stoppered bottles.

CHEMISTRY. As it is almost impossible that a description of so complicated a subject as chemistry, can possess the neatness and precision requisite in a definition, we must refer our readers to the many popular treatises on the subject; for, though a branch of medical science, there are so many other subjects of greater interest to the domestic practitioner to be treated of, that we can only afford a very brief space to the present.

Chemistry was formerly considered as a mere art, but at present is justly regarded as one of the most sublime and important of the sciences. In its object it embraces nearly the whole of natural phenomena, there being comparatively few changes, which are not attended with some effect that comes under the consideration of this science. Indeed we might almost define it negatively by affirming, that every effect not purely mechanical, is chemical; and in pursuance of this view of the subject, we should say that chemisty, as a science, teaches the methods of estimating and accounting for the changes produced in bodies, by motions of their parts among each other, which are too minute to affect the senses individually; and as an art we should affirm, that it consists in the application of bodies to each other, in such situations as are best calculated to produce those changes.

CHEST. The chest or thorax, as it is termed in anatomy, is a cavity of somewhat conical form, the apex being its upper part, where it terminates at the neck. It is bounded below by the diaphragm, in front by the sternum or breast-bone, and cartilages of the ribs; laterally by the ribs and intercostal muscles; posteriorly by the spinal column; superiorly it is open, and through this opening there pass the various vessels which convey the blood to and from the head and superior extremities, also the gullet, wind-pipe, and various important nerves.

The chest is lined by a fine serous membrane, which is reflected from its walls upon the lungs which it invests, and thus allows of free motion, and prevents any bad consequences from friction of one part against another. The principal contents of this cavity are the lungs, trachea, and its divisions, termed the bronchial tubes, the heart, and pericardium which contains it, the pulmonary artery and veins, the aorta, thoracic duct, superior and inferior vena cava; and the œsophagus or gullet traverses this cavity to gain the abdomen. Besides these parts, there are several important nerves which pass through this cavity; these are the sympathetic, splanchnic, pneumogastric, and phrenic.

As a view of the situation and appearance of the principal contained organs has been given in the wood-cut, No. 2., accompanying the article *Abdomen*, we shall refer our readers to it.

View of Thoracic Viscera.

K Right Lung.
L Left Lung.
M Heart.
N Pulmonary artery.
O Aorta.
P Trachea.
QQ Pleura costalis turned back.

CHICKEN-POX. The symptoms of this mild disease are generally weariness, loss of appetite and sleep, and a degree of fever; an eruption appears usually first on the back, consisting of small reddish pimples, resembling the first appearance of small-pox; on the second day

the pimples have a small vesicle on their centre, on the third day the eruption is full, and by the fifth day the eruption disappears without leaving any mark. This disease is distinguished from small-pox by the mildness of the febrile symptom, and by the fluid contained in the vesicle, not being purulent as in that disease; and by the eruption beginning to disappear before that of small-pox would be even maturated.

Treatment. The only treatment necessary in this disease is to keep the bowels open by gentle laxatives, to encourage the appearance of the eruption, to allay the febrile symptoms by a warm bath at the commencement of the attack, and by cooling drinks and mild diet. If any local symptoms occur, or if the complaint is more violent than usual, then the treatment recommended in small-pox must be adopted.

CHICKWEED; the *Alsina Media*. This well known garden weed, when gathered free of sand or gravel, and boiled, forms an emollient and agreeable poultice to old sores or wounds, which have not united by the first intention. It is a good and economical substitute for linseed powder, and may either be applied alone, or mixed with a little oatmeal, so as to form chickweed porridge. When prejudice does not interfere, chickweed forms an excellent pot herb, and may be eaten with butcher meat, when fresh in the spring, and when greens are often scarce and expensive. It is seldom, however, used in diet in Britain, although it is so employed on the continent.

CHILBLAINS are inflammations or sores arising from exposure to cold, and are in fact one of the results of a partially frost-bitten state. In their mildest form, they are attended with heat, itching, and redness of the parts, which are generally either the toes, fingers, or some other portion of the feet or hands; but sometimes the nose, chin, or ears. In their next degree of severity, they are accompanied by vesications or small blisters, and the parts are still more swelled, red, or livid. Under the detached cuticle or scarf skin, there is generally a collection of bloody ichorous matter. Another and more severe form of chilblain, is that which proceeds to ulceration. The sores which are formed in consequence of chilblains, are often very deep, excessively painful, and often particularly obstinate, much more so than those produced by burns. The worst chilblains are attended with sloughing, that is, the death or mortification, and separation of the soft parts. They most frequently occur in delicate persons, and hence women and children, and the sedentary, who are little habituated to sudden changes of temperature, are most liable to their attacks. The parts are generally those most remote from the seat of circulation.

There is generally to be met with four descriptions of chilblains, or rather chilblains in four different stages of progress, or states of aggravation.

1st. Chilblain with mere redness of the part, heat, and itching. In this state of matters, the best application that can be made to the part affected, and the surrounding margins, is strong camphorated spirits, say one ounce of camphor, dissolved in a pint of strong whisky, brandy, or rum. It is necessary first to drop a few drops of the spirit on the camphor, which may then be easily rubbed to powder in a mortar, and then add the remainder of the spirits. The chilblain is to be frequently bathed with this spirit, and pledgets of linen rag kept moist with it constantly on the part. Where camphor is not to be had, a small portion of oil of turpentine, say two ounces, may be mixed with the spirit as a substitute; or where expence is no consideration, the same quantity of spirit of rosemary. Should these means fail, and the chilblain proceed to the second stage, viz., more inflammation, pain, swelling, and vesication or blisters on the surface, it will then be necessary to open the blisters in the most depending part, avoiding a large and free opening in the surface, still keeping the part moist with the camphorated spirit. If, however, the disease proceeds to the third stage, and ulcerates, it will be necessary to apply a carrot, turnip, or barm, or yeast poultice; and if there is not a very great discharge, dressing the sore with Turner's cerate, after washing it with weak tincture of myrrh. After this plan of a carrot, turnip, or fermenting poultice during the night, and the cerate during the day, has been persevered in for some days, the cerate may then be changed for mild red precipitate ointment (ointment of nitric oxide of mercury), and, unless the discharge is considerable, the poultice omitted. Dusting the sore with prepared calamine stone (carbonate of zinc), as directed in *Burns*, to absorb the matter, may answer equally well, and it may, in some cases, be preferable to the cerate, as mild and oily applications rather prove irritating than otherwise to sores of this description. The directions we have given as to the third class, will apply with double force to the fourth, only we would prefer pledgets of linen, of five or six folds, wetted with tincture of myrrh, as a dressing. When chilblains proceed to this last stage, constitutional treatment is absolutely necessary. Four or five grains of sulphate of quinine, in a glass of wine, should be given three times a-day, and the diet should be generous. The bowels should be kept regular with the castor oil and turpentine enema, rather than by purgatives administered by the mouth.

Washing the sores with a strong solution of alum water, where the expense of tincture of myrrh cannot be afforded, is a good substitute.

CHIVE, or CIVE, or the *Allium Schœnoprasium*. This is a small well-known plant, seldom exceeding six inches in length, and the roots never producing any bulbs, although it may be denominated a bulbous rooted plant. The leaves are oval shaped, hollow, and the stem naked. It is a hardy perennial, and by some said to be a native of Siberia, and by others, of Britain, because it is occasionally found in our meadows and pastures. The flowers are white, tinged with reddish-purple, and appear late in May or in June. Its taste, smell, and virtues are much the same as those of the common onion, but esteemed milder than either onions or scullions; and as substitutes for young onions in spring salads, the leaves of the cive and the roots are taken together, slipped to the bottom singly, into small separate strips; the usual mode of gathering is by cutting or shearing the leaves with a knife, to within two inches of the root, and on this account it is generally called in the plural cives, and when thus cut almost close to the earth, they speedily spring up. The cive is indeed a most useful pot herb, and is used as seasoning in every case in which onions and leeks are employed, and may be had green at almost any time of the year.

CHLORIDES. The compounds of chlorine with bases are called by this name, and several of them are employed in medicine, such as the chloride of gold barium, lime, mercury, &c. for an account of which we refer to their respective bases.

CHLORINE, or CHLORINE GAS. This gas is evolved in the mixture of the muriatic acid (spirit of salt of commerce) with finely powdered gray oxide of manganese. On the mixture of these ingredients, effervescence takes place, and a yellowish green coloured gas is extricated. Heat assists in the extrication, as when the gas ceases to come over by heating the mixture, the evolution is renewed. Its greenish colour is easily recognised by day light, but scarcely by lighted candles. The odour and taste of chlorine are so characteristic, strong, and disagreeable, that it is scarcely possible to mistake it for any other gas. Even when much diluted with atmospheric air, when breathed, it occasions a sense of strangulation, constriction of the chest, and a copious discharge from the nostrils; and if respired in larger quantity, it excites violent coughing, with spitting of blood, and would speedily destroy life: indeed, if undiluted, no animal can breathe this gas without immediate suffocation. Water absorbs twice its volume of chlorine, and acquires a greenish yellow colour, with its small acid properties.

Chlorine is used as a disinfectant, and the disinfecting vials of Morveau evolve it. As to its efficacy in destroying contagious *miasmata*, there is, of course, a variety of opinions, some considering it altogether useless, while others place on it the most confident reliance.

CHLOROSIS, or GREEN-SICKNESS, is a disease which attacks the female sex, and is generally the result of retention or irregularity of the menstrual discharge. The symptoms are those of general debility, weariness and disinclination for exercise, the patient is easily fatigued, there is pain and weakness in the back and loins; feeling of weight and uneasiness at the lower part of the abdomen; the countenance is generally anxious, and the skin has a peculiar pallid and greenish yellow hue, from which the disease receives its name. As it advances the eyes become sunk. There is flatulence and dyspepsia, with craving for unnatural articles to eat, such as earth, cinders, chalk, &c. The breathing is hurried, the pulse weak and frequent. There is cough, and œdema of the lower extremities; and, frequently, hysteria.

In some cases retention of the menses takes place in persons of a full habit of body, attended by very different symptoms from those above described, namely, full slow pulse, constant drowsiness and headaches, flatulence, and fibrile excitement.

In the first described form, the indications of treatment are—first, to invigorate the constitution generally, by gentle exercise; the exhibition of tonics, such as the preparations of iron, quinine, combined with gentian, the moderate use of wine, nutrient diet, &c. Secondly, to excite the womb to act, by the exhibition of gentle aloetic laxatives, combined with myrrh or iron, or both, and the following will frequently be found a serviceable form of exhibiting these:

Take of Barbadoes aloes,	12	grains.
Cayenne pepper,	6	—
Sulphate of iron,	12	—
Powdered myrrh,	6	—
Extract of gentian,	12	—

Mix, and divide into 12 pills, one to be given thrice a-day.

Frictions over the lower part of the belly, the warm hip-bath, or vapour bath, and in obstinate cases electricity, by gentle shocks through the region of the womb, will be found highly beneficial.

In those cases where there is heat of skin, drowsiness, with weight and pain in the head, and fullness at lower part of the belly, general and local blood-letting, followed by emetics, the warm bath, and brisk purgatives, should be had recourse to, in cases which resist the above detailed treatment. Some mechanical obstruction to the flow of the discharge may exist, and therefore no time should be lost in applying for professional aid.

CHOCOLATE, is the cocoa nut reduced into paste, with a mixture of flour or sugar, milk or eggs; but it is often mixed with various aromatics, by which it is rendered more heating and less wholesome. It has by some been

reckoned the best of the three exotic liquors which have been introduced into Europe. It is best when not boiled too much, as, when prepared for use it should merely be dissolved by bringing it to the boiling point, as too much heat renders it harder of digestion. It is highly nourishing, particularly when boiled with milk and eggs, and is frequently recommended as a restorative in cases of emaciation and consumption; and it may be of use to old diseased people, but it does not agree with the bilious. It is too rich for common aliment, as it becomes too oppressive, on account of its oily quality. By the young and sedentary, any immoderate use of it is always improper. Unless the nut is properly prepared, and the liquor is made fresh and good, it has a greasy or rancid taste, and disagrees, says Mackenzie in his Theory of Health, with almost any stomach. To the corpulent, and those employed in mental pursuits, it is highly pernicious. It yields so much nourishment, that it may at once supply the place of victuals and drink to those who work at light employments; but along with plenty of milk and eggs, and the other *et ceteras* of a Scotch breakfast table, it forms an excellent meal for a robust traveller. It has lost much of its reputation and many of its virtues since it became more common; still in many cases it forms a safe and agreeable article of diet.

CHOLERA. There are two forms of this disease. The first—the ordinary form—which frequently occurs in this country in warm weather, especially in autumn, and which also frequently arises from acrid matter taken into the stomach, as excess in fruits, vegetables, fish, &c. The symptoms of this form are pain and distention of the abdomen, heat of skin, and restlessness, attended with nausea; this is soon followed by violent vomiting and purging of bilious matter. The pulse becomes small and unequal, and there is great thirst, and the extremities are cold; in violent cases there are spasms, or even universal convulsions of the body, also hiccup, and death has taken place not unfrequently within twenty-four hours. As this form of cholera depends either on the presence of vitiated bile, or some other acrid matter in the intestinal canal, the evacuation of the cause must naturally be our first object. The best remedy for allaying the vomiting, so as to allow of the exhibition of other remedies, is small quantities of aerated soda water, with the addition of a little carbonate of soda or potass. This should be followed by a pill, composed of eight or ten grains of calomel and one grain of opium, and an enema of barley water may be administered also at the commencement. Sinapisms, or hot turpentine cloths, should be applied to the abdomen, and if the pain is severe, and the patient tolerably strong, general bleeding may be had recourse to; hot applications should also be applied to the feet and armpits; the calomel may be followed in two or three hours by an ounce of castor oil, with twenty or thirty drops of laudanum, and when this has acted freely, a dessert spoonful of the astringent mixture of catechu (see *Domestic Pharmacopeia*) may be given after every loose motion, till the purging is checked. Should the symptoms increase in severity, and hiccup and other symptoms of sinking supervene, then stimulants, such as ether and laudanum, camphor mixture, or brandy in small quantities, are to be exhibited. When the disease has been checked, great care must be taken in regard to the after treatment for some time; the diet should be light and unstimulating, the bowels should, at all times, be kept gently open, and tonics, particularly bitter tonics, should be administered.

Malignant, or *Asiatic Cholera*. This formidable disease is generally ushered in by premonitory diarrhea, or looseness of the bowels, for a day or two previous to the attack, though in some instances, as in India, the patient is struck down at once. When the disease has fairly set in, the evacuations, by vomiting and stool, are almost continual, the stools being no longer feculent, but consisting of a fluid like rice water, with a peculiar fœtid smell. There is a sense of coldness in the abdomen, accompanied by cramps in the bowels, and violent continued pain at the epigastrium. There is great prostration of strength; the surface is cold and covered with a clammy sweat; the countenance is shrunk, cold, and of a leaden or bluish colour; the eyes are sunk, and surrounded with a dark circle; the nails are blue, and the fingers and toes, cold and shrivelled. The pulse is weak, often almost imperceptible; the respiration oppressed; the voice weak and hoarse; the tongue pale and flabby. There is great restlessness, and continued moaning; cramps or spasms commencing in the toes and fingers, now begin increasing in violence, so as to cause tetanic convulsions in some cases; the vomiting and purging increase, the patient gradually continuing to sink; the various secretions, as the saliva, urine, &c., are generally entirely suppressed almost from the commencement. Gradually the patient becomes insensible or comatose, the teeth become covered with a dark crust, and death generally takes place in from six to twenty-four hours from the commencement of the attack. The symptoms are more favourable where the vomiting and cramps diminish, where the stools become of a bilious character, where the secretion of urine is re-established, and where the pulse and the temperature of the skin begin to rise; but at the same time it must be recollected, that, in this country, there occurred a peculiar febrile state after reaction, of which a great many patients perished; this state is almost unknown in this disease, as it occurs in India.

Treatment. This has hitherto been so unsatisfactory, and the remedies employed so numerous, that it is difficult to say what ought to be done; indeed there are few remedies in medicine which have not been tried in different cases, and all seemingly with but little effect. However, the plan we would recommend is, in the first place, to stop the vomiting, by using the aerated water with potass as in British cholera, and by applying sinapisms to the epigastrium, and the use of the heated air couch; if the patient has been previously healthy, and the evacuations have not hitherto been great, bleeding may prove serviceable, in allaying the vomiting, purging, and cramps, and also in causing the pulse to rise, by relieving the circulation through the lungs, and removing congestion. Large doses of calomel, with opium, say ten or fifteen grains of the former, with one or two of the latter, and repeated every hour, till slight salivation occurs, or a bilious appearance of the stools takes place, should be given; frictions, with mercury, have also been employed to produce salivation, but not with much success. If the purging continues violent, small starch enemata, containing laudanum, may be administered; and sugar of lead, in doses of one or two grains, combined with opium, may be given by the mouth every half hour till the purging ceases, and should then be followed by a small dose of castor oil. Drinks should be given very sparingly, and the best is thin gum water, a table spoonful only being given at a time. If the patient begins to sink, and the cramps become more violent, stimulants, such as ether and laudanum, warm brandy and water, camphor mixture of double strength, and combined with sweet spirit of nitre, must be given, and warm turpentine frictions employed. When the patient becomes comatose, all is generally useless. When reaction occurs, accompanied by the febrile state we have mentioned, it should always be borne in mind, that the patient's constitution has received a great shock, and that general bleeding, therefore, can never be admissable, however high the symptoms seem to run. The treatment should consist of gentle laxatives, such as castor oil; and if local symptoms appear, particularly head symptoms, cold cloths, sponging the body with warm water and vinegar, and the application of leeches to the head, may be had recourse to. The after treatment requires the attention to the state of the bowels and digestive organs, as recommended in common cholera, and a warm flannel bandage should be worn constantly for some time round the belly.

CHORDEE. This disease generally occurs in cases of clap, or rather it is one of the symptoms which sometimes arise during that disease. It consists in a painful swelling, erection, and curving of the male organ of generation, and generally occurs when the patient is warm in bed. The best remedies are opiates, either taken internally, or applied in the form of fomentations to the part; immersing the penis in cold water sometimes relieves the paroxysm, and where the pain is violent, and not relieved by these means, opening one of the veins on the penis will be found serviceable. See *Clap*.

CHORION; the external membrane of the fœtus.

CHOROID-COAT; one of the coats of the eye. See *Eye*.

CHRONIC; a term used in medicine to denote diseases which have continued for a length of time, in contradistinction to those of an active or acute nature.

CHYLE; a milky fluid found in the lacteal vessels and thoracic duct. It is the form which the nutrient part of the food takes on being separated from the general mass, by the process of digestion, and before being mixed with the blood. See *Digestion*.

CHYME; a pulpy mass of a gray colour, being the form the food takes after having been masticated and mixed with the saliva, and subsequently acted on by the gastric juice in the stomach, and previous to being acted on by the bile and pancreatic juice in the intestinal canal. See *Digestion*.

CICATRIX, OR SCAR. The whole of the new substance which fills up the chasm left by ulceration, or the cavity of a suppurating wound, and presenting a smooth compact feel, is called in surgery the cicatrix or scar, and the process by which this is effected is more particularly explained in the next article.

CICATRIZATION. That part of the healing process, which consists in the formation of a cicatrix, or the substance composing the scar, which, in ulcers upon the surface of the body, is formed of the remains of the granulations, and the new skin covering them, is called the process of cicatrization. The cavity of a suppurative wound, or abscess, or the chasm of an ulcer, being filled up with granulations, the production of the new skin over them is the most desirable change in this process. When cicatrization is about to take place, a fine delicate smooth shining red pellicle is first observed on the margin of the sore. This is the rudiment of the new skin, which varies from one to two or three lines in breadth, and is found to extend itself gradually from the edge of the sore to the centre, until the whole of the granulations are covered, when suppuration immediately ceases. The sore is now healed, and the cicatrization complete. Indeed the movements of no piece of machinery can be more readily or seasonably stopped or checked, when its continued motion is no longer necessary, than is the suppurative or healing process in this case, when it has once fulfilled the wise and salutary design for which

it commenced its labours, viz. the complete healing up and skinning over the wound or ulcer; or in other words, effecting its entire and complete cicatrization.

CIDER; a pleasant and refreshing beverage, made by fermenting the juice of apples. The liquor thus procured effervesces, owing to the quantity of carbonic acid it contains. It contains but little alcohol, and has a pleasant subacid flavour. It is a wholesome drink when taken in moderation, except to persons suffering from indigestion, by whom it should be carefully avoided. When taken in large quantities, or drunk whilst the person is overheated, it is apt to cause colic and other disagreeable symptoms.

Cider has, in some instances, been found to contain lead, either from being kept in leaden vessels, on which it acts, or from lead having been designedly added. The symptoms and treatment necessary in such cases will be found treated of under the articles *Lead* and *Iliac Passion*.

CINCHONA BARK, OR PERUVIAN BARK, sometimes called JESUITS' BARK. There are three kinds of cinchona bark recognized by the British colleges, namely—1. C. Lancifolia, or Lance-leaved Cinchona, or the common quilled pale bark. 2. C. Cordifolia, or Heart-leaved, commonly called the yellow bark; and, 3. C. Oblongifolia, or Oblong-leaved, or the red bark. Many botanists of note have, however, denied the correctness of these botanical distinctions, and it is even said, that there are as many as eight varieties of the cinchona bark to be met with in practice.

The distinctive characters of good cinchona, are its density, weight, and dryness, and that a decoction made of it has a reddish colour when warm, becomes paler on cooling, and deposits a reddish sediment. 'Those pieces,' says Dr Duncan, 'whose taste is simply intensely bitter, or very astringent or nauseous, or merely mucilaginous, whose surface is smooth or polished, or a dark colour, pale, yellow, or red, which are tough or spongy, whose fracture is fibrous, woody, or powdery, and their internal colour white or gray, are to be rejected. It is still more difficult to know genuine cinchona bark in the form of powder.'

The cinchona bark has been repeatedly subjected to analysis, by some of the first chemists, but until the year 1821, its constituents were not accurately determined. Yellow bark contains, according to Vauquelin, a peculiar acid which he calls kinic, and which Dr Duncan has denominated cinchonic acid; and this bark is also found to contain the largest quantity of quinine, or the active principle of cinchona. Red bark contains both cinchonine and quinine, in large proportions. The yellow bark ought therefore to be preferred, and next the red and gray sorts. There are, however, various other principles in Peruvian bark which we do not enumerate.

Cinchona bark acts upon the living fibre as a powerful tonic, stimulant, and antispasmodic; on dead animal matter as antiseptic. It was long considered as a specific in intermittent fevers, but it sometimes fails to produce beneficial effects. It is very much employed in the last stage of continued and eruptive fevers, when typhoid symptoms appear, and great prostration of the vital powers are present. Accordingly, it is much praised in typhus, confluent small pox, yellow fever, scarlatina maligna, putrid sore throat, gangrene or mortification, in acute rheumatism, certain forms of dysentery, scrofula, ill-conditioned ulcers, rickets, and in dyspepsia, hypochondriasis, and during convalescence after various inflammations. It is exhibited in powder, infusion, decoction, tincture, wine and extract, and, of late years, combined with sulphuric acid, in the form of quinine. It is likewise applied in the form of powder or cataplasm to ill-conditioned sores, carious or gangrenous ulcers, and is used in gargles and enemata.

CINNAMON BARK. This is the bark of the *Laurus Cinnamomum*, a tree which grows in the island of Ceylon, but it is cultivated in other parts both of the East and the West Indies.

The bark consists of two coats or layers, of which the interior constitutes the true cinnamon of the tree. After being peeled off, the bark is laid in the sun to dry, when it curls up into rolls, as it is sold in the shops; the finest cinnamon is that which is obtained from the younger and smaller trees, and the inferior from those of larger dimensions and greater age.

The best cinnamon has an aromatic odour, a pungent sweetish pleasant taste, depending on essential oil, of a light yellow-brown colour. The pieces are quilled within each other, and are not thicker than thick post writing paper, and the fracture is fibrous and woody.

The operation of cinnamon, or its effects, are astringent, carminative, tonic, and stimulant, and it is used to cover the taste of nauseous remedies, and as a grateful aromatic in dyspepsia, diarrhœa, and nausea, and the bark chewed acts as a useful stimulant in paralytic affections of the tongue.

In substance, in the form of powder, it is given in doses of from ten grains to half a dram.

The oil of cinnamon is not prepared in Britain but imported. It possesses the odour of the bark in a high degree, is of a pale yellow colour, sinks in water, and is entirely soluble in alcohol, and has a very hot pungent taste. It is stomachic and powerfully stimulant, but is seldom used undiluted, except to ease the pain of a carious tooth. Even one or two drops of the undiluted oil, on a bit of loaf sugar, is rather too hot and fiery for ordinary mouths. When it is used in this form to allay cramp or pain in the stomach, the oil is usually dissolved in the

proportion of an ounce and half to a pint of rectified spirit, and in this diluted state takes the name of essence of cinnamon.

CIRCULATION OF THE BLOOD. The great discovery of the circulation is due to the illustrious Dr Wm. Harvey, afterwards physician to Charles I., whose attention was directed to it from observing the manner in which the various valves at the different parts of the vascular system were disposed; more particularly those on the veins of the lower extremities; whilst these pointed out to him the impossibility of blood flowing through those vessels from the heart to the extremities, they showed, at the same time, that blood could readily pass back through them to the heart, and that the column of blood so passing back would be supported by the valves, and this led him to the conclusion, that the arteries transmitted the blood to the various parts of the body for the purposes of nutrition, whilst the veins served the purpose of returning the blood to the heart after having been so distributed.

As the circulation in the fœtus (child in the womb) differs considerably from that in a person after birth, or, in other words, from a person who breathes, we shall first describe the circulation in the perfect human being.

The organs employed in the circulation of the blood, are the heart, arteries, and veins, and a set of minute vessels intermediate between; the two last named capillaries, and the lungs. The heart consists of two distinct cavities, separated by a partition, or septum, throughout their whole extent; these are termed the right and left sides of the heart; the right side being also termed the venous or pulmonic heart, and the left side being termed the arterial or systemic heart. Each of these sides are again sub-divided into two portions; the superior cavity being called the auricle, and the inferior the ventricle. Into the right auricle there enters, 1st, The vena cava superior; 2d, The vena cava inferior; 3d, The coronary vein of the heart. The right auricle communicates with the right ventricle through the auriculo-ventricular opening, and at this opening a valve is placed to prevent the reflux of the blood into the auricle. From the right ventrical there arises a large vessel—the pulmonary artery, which divides into two great branches, one proceeding towards each lung. Into the left auricle there enter the four pulmonary veins, and this auricle also communicates with the left ventricle, and at the opening by which they communicate there is placed a valve for a similar purpose to that between the right auricle and right ventricle; and from the left ventricle there arises a large vessel, the aorta or great systemic arterial trunk, and at its origin, as well as that of the pulmonary artery, on the right side, there are placed three semilunar valves, which prevent the regurgitation of the blood. Having thus given a brief description of the heart, that we might be more easily followed, we now proceed to describe the circulation. The blood which has been distributed by the arteries for the purposes of nutrition, passes from them by the capillaries into the veins; the veins from the lower part of the body empty themselves into the inferior vena cava, those from the upper parts of the body empty themselves into the superior cava. The superior and inferior cavæ, together with the coronary veins, now pour their contents into the right auricle, which contracting, forces the blood into the right ventricle, which in turn contracts, throwing the blood into the pulmonary artery, and by its ramifications, it is circulated through the lungs, and there undergoes the change from venous to arterial blood; from the lungs, the blood, so changed, returns to the left auricle by the four pulmonary veins; from thence it passes into the left ventricle, from which it is propelled into the aorta, by whose branches it is distributed to all parts of the body, and is returned by the veins to the right side of the heart.

The pulse, which is caused by the wave of blood propelled through the arteries by the contractions of the heart, is dependent upon, and therefore serves as an index to the heart's action. See *Pulse*.

Circulation in the Fœtus. The peculiarities of the circulation in the fœtus being dependent on the difference of its organization, we can scarcely hope to make ourselves intelligible to the general reader, and this is of the less importance, as it is a subject of but little interest to him. The arterial blood passes from the placenta by means of a large vein called the umbilical vein, which enters the body of the fœtus at the umbilicus, or navel; this vein passes towards the liver, near which it divides into three branches; one to the left lobe of the liver, one to join the vena porta (a vein which ramifies its blood, like an artery, through the liver), and the third, termed the ductus venosus, passes directly into the inferior or ascending vena cava. The blood which has circulated in the liver is also returned into the vena cava inferior, by veins called the venæ cavæ hepaticæ. The blood then passes from the inferior cava through the right auricle, by an opening which exists in the fœtus, directly into the left auricle, from thence into the left ventricle, and from it by the ascending aorta into the arteries, supplying the head and superior extremities. A very small quantity, if any, passing into the descending aorta. The blood which has circulated in the upper extremities and head, is returned to the right auricle by the superior vena cava, from it into the right ventrical, and thence into the pulmonary artery. This vessel in the fœtus divides into three branches; one very large branch, termed the ductus arteriosus, which communicates directly with the lower part of

the arch of the aorta; whilst the two proper pulmonary branches are exceedingly small in the fœtus. A very small portion, therefore, of the blood from the left ventricle only passes into the pulmonary branches; whilst the greater part is transmitted directly by the ductus arteriosus into the descending aorta, and by its branches it is distributed to the lower extremities, whence it is returned in the form of venous blood by the umbilical arteries to the placenta.

CITRIC ACID; an acid obtained in the form of crystals from the lime, lemon, and orange, and which exists also in other fruits, as the gooseberry, raspberry, &c., in combination with malic acid. Citric acid is used in medicine principally in preparing acidulated drinks, or with carbonate of ammonia, or soda, in preparing effervescing draughts, where fresh lemon juice cannot be procured.

CITRON, OR CITRUS MEDICA. The officinal species of the citrus which are used in medicine or domestic economy, are four, which will be found described under their respective names.

The citrus medica, or the citron, or rather the fruit of this species, is oblong and rugous, with a thick rind, and a slightly acid juice. There is obtained from the rind of the fruit, by distillation, a fragrant oil lighter than that procured from the lemon, which is known by the name of the essential oil of citron, (oleum essentiale citri,) and is employed by perfumers, although there is no valid objection to its being employed to render medicines of a disagreeable flavour more pleasant.

The leaves of the tree are used in domestic economy, to keep away insects from clothing, to which they impart a very agreeable fragrant odour, and for this purpose are placed between the folds of sheets, shirts, and other such articles.

In commerce there is met with another oil under the name of the *Essential oil of Cedra*, which is erroneously stated to be identical with the oil of citrons. The error is, however, of no practical importance, for it unites the odour of the citron and the bergamot, and is a favourite and agreeable perfume.

CLAP, OR GONORRHÆA. This disease consists in inflammation of the urethra, attended with a discharge of a greenish yellow puriform matter, and is usually the result of the application of a similar fluid to the parts. The period at which the disease appears, after the application of the diseased matter, varies from ten or twelve hours, to as many days; the first symptoms are heat and itching about the parts, with a degree of soreness along the course of the urethra, followed by a slight discharge of whitish matter. There is now pain on passing water of an intense burning nature, and the discharge increases in quantity, and becomes of a greenish or dark yellow colour; the stream of urine becomes smaller, the pain more intense and scalding; in some cases there is a degree of irritability of the bladder, and there is frequently swelled testicle and chordee; sometimes the foreskin is so swollen, that it cannot be drawn back, forming what is termed phymosis; or the opposite state may exist where it is swollen behind the glans penis, and cannot be drawn forwards, termed paraphymosis. With regard to the time which the disease may last, much depends on the conduct of the patient; for a great many, the moment they feel a little better, return to debauchery and riotous living, by which the virulence of the disease is aggravated, and others neglect the timely employment of remedies; if these last be employed in time, and temperate living rigidly adhered to, the matter gradually diminishes in quantity, the pain becomes less violent, and in from fifteen to thirty days, the diseases may disappear; but if the patient be self-willed and intemperate, he will, in all probability, bring upon himself the many troublesome and dangerous consequences of this disease, as gleet, warts, stricture, abscess of the prostate, swelled testicle, &c.

Treatment. The treatment of an ordinary gonorrhœa consists, in the first instance, of the exhibition of cooling laxatives, such as small doses of salts and senna, or cream of tartar water, or castor oil; mere drastic purgatives should be avoided, unless the bowels are much constipated, as by irritating the rectum they may tend to increase the inflammation of the urethra, from its contiguity to the lower part of the bowel. In cases where there is much pain and inflammation of the parts, accompanied by fever, bleeding, both local and general, will be found very efficacious in checking the disease if the constitution be good, and if it be employed early, this should be followed by frequent fomentation of the parts, by means of the warm hip bath; and where there is irritability of the bladder, a suppository of hyosciamus and opium may be placed in the rectum, and will be found to afford much relief. The internal remedies are the balsam of capivi, in doses of twenty or thirty drops thrice a-day, combined with sweet spirit of nitre, and barley water; or made into an electuary with cubebs, for which purpose the resin of capivi should be employed. The dose of the cubebs is from two drams to half an ounce thrice a-day; when taken alone, it is apt to give rise to disagreeable symptoms, but when combined with the capivi resin and treacle, so as to form an electuary, it will be found both more effectual, and less disagreeable. Diluent drinks, such as gum or barley water, with a small quantity of nitre, will often be found useful, and the diet should be light and unstimulating. Wherever it is possible, perfect repose should be enjoined, and in all cases the penis

and scrotum should be supported by means of a suspensory bandage, and the parts kept perfectly clean, by frequent ablutions with water; and great care should be taken not to touch the eyes with the fingers, or any article used in washing the parts, as the gonorrhœal matter produces a most violent form of ophthalmia. Wine, and stimulating liquors and food of every kind, are to be carefully avoided. When the inflammatory symptoms have subsided, and the discharge becomes pale and thin, or in other words, gleety, then the cautious use of astringent injections should be had recourse to, taking care to press on the urethra with the fingers of one hand, about three inches from the orifice, so as to prevent the injection passing further, which might and often does cause swelled testicle. The injections should be very weak at first, say one grain of sulphate of zinc, to two ounces of rose water, or double that quantity of alum, to the same quantity of water; they are to be thrown in by means of a small bone or ivory syringe. For the treatment of swelled testicle, gleet, bubo, and other symptoms which sometimes accompany clap, see their respective heads.

CLOTHING. There is no subject in hygiene which demands more attention than clothing, particularly in such a changeable climate as that of Britain; and much care should be taken in regard to changing our articles of dress at the different seasons. A little fine weather in April or May should not tempt us to throw off our winter clothing, which should be worn till summer has unquestionably arrived. In all variable climates, woollen clothes are the preferable, for being bad conductors of caloric, they both prevent the natural heat of the body from escaping, and the external heat from reaching it; thus keeping the body at an equable standard. Flannel is sometimes weakening from exciting too constant perspiration, or is objected to by persons from its irritating the skin; in such cases very fine cotton should be substituted, which has all the good qualities of flannel, though in an inferior degree. Chamois leather dresses are worn next the skin by many persons, as uniting all the advantages of flannel and cotton. Great attention should be given to keeping the extremities warm, more particularly the feet; the shoes should be kept perfectly free from moisture, and the stockings should be of warm materials, and frequently changed; precautions which will prevent many affections of the head and bowels, and will be found particularly beneficial to the dyspeptic. With regard to other parts of dress, tightness of any part should be carefully avoided, more particularly the pernicious habit of tight lacing so common amongst females, which gives rise to much deformity, and fatal disease.

CLOVES. This well known spice is a native of the Molucca islands. Cloves are of a dark brown colour, with strong and grateful aromatic smell, and they have a pungent aromatic taste; they are used extensively in cookery for flavouring food, and in medicine to diminish the griping which sometimes arises from other medicines; for this purpose their essential oil is used, as in making colocynth pills, and the oil is also used in toothache, by dropping it into the hollow of the tooth.

CLUB-FEET. This deformity in infants is one which can never be treated by the domestic practitioner, and we merely mention it for the purpose of calling the attention of parents to the necessity of early application for surgical advice, as much can be done to remedy it at an early period.

CLYSTERS. See *Injection*, and *Enema*.

COCULUS INDICUS, or COCULUS TUBEROSUS; the plant producing the coculus Indicus, sometimes termed the Indian berry, the Levant nut, or the Oriental berry, belongs to the class *Diœcia*, order *Hexandria* of Linnæus, and is a native of Malabar.

The berry is about the size of a wild cherry, is rugous and rounded, approaching to a kidney shape; the colour is a blackish-brown, and the epidermis or outer layer of an acrid and bitter taste, containing a white nucleus, consisting of a thin bivalved ligneous shell. The fruit in its fresh state, which is by some called a drupe and by others a berry, is reniform, purplish-red and fleshy.

The coculus Indicus, like every other drug possessing active qualities, has of late been the subject of various elaborate analyses, but the constituents of the berry have not yet been correctly ascertained. This berry is well known to possess poisonous qualities, and the picrotoxine on the poisonous effects, of which the nucleus in its operation depends, is analogous to that of the berry, though much stronger. Ten or twelve grains given by the mouth are sufficient to kill a dog, and a grain and a half of the picrotoxine injected into the jugular vein of a dog killed the animal in twenty minutes. As far as is known, there is no animal exempt from its poisonous effects; quadrupeds, reptiles, even crocodiles, birds, and fishes. When introduced into the stomach, its effects are confined to the production of nausea and vomiting. It acts on the cerebro-spinal system, causing staggering, trembling, tetanic convulsions, and insensibility.

Orfila says, that coculus Indicus acts like camphor, and principally upon the brain. These berries have been rarely used as internal medicine. They have, however, been employed externally, in the form of ointment, in some diseases of the skin, especially porrigo, or scald head, and for the destruction of vermin that annoy animals, and sometimes man; hence the Germans call the berries Lausekorner, or Lousegrains. The ointment is prepared with one part

of the powdered berries to two of lard; and some have employed the picrotoxine in ointment for the same purposes, in the proportion of ten grains of the picrotoxia to an ounce of lard. We, however, caution general readers against its application to very tender skins, or to any eruptions on other parts of the body resembling those on the head.

No ill effects need be apprehended from the employment of from one dram to two of the ointment to the scalp of children from five to ten years, but with younger children caution is required in its administration.

Hill says, that three or four grains have brought on nausea and fainting; and we have no doubt, from ten grains to a scruple would occasion death.

The legislature of the country, aware of the circumstances of the case, have enacted severe prohibitory statutes, for the prevention of a nefarious practice, we mean the employment of this poisonous berry in the manufacture of ale and porter, and as it is now frequently employed in the form of powder, or solution, it is not easily recognized. It has been stoutly denied that this drug is now employed by any respectable brewer, but let us listen to what a popular writer on brewing says on the subject, before we receive with implicit credit the *ex parte* statements of brewers and their dependents. 'Take,' says Morrice, 'three pounds of coculus Indicus to every ten quarters of malt; it gives an inebriating quality, which passes for strength of liquor;' and adds, 'it prevents second fermentation in bottled beer, and consequently the bursting of bottles in warm climates.' Now the work of this said Morrice has passed through numerous editions, and been during many years in considerable repute.

Black, a practical brewer of forty years' standing, says, in his Treatise on Brewing, 'although generally speaking I object to every kind of drug in brewing, it would be folly to suppose that we can at all times dispense with them,' and then goes on to detail the facts of the case.

The writer of a most scientific article on brewing, in the seventh edition of that excellent work the Encyclopedia Britannica, says, 'To supply the place of the agreeable bitter which was communicated to porter, by the use of brown malt, various substitutes were tried. Quassia, coculus Indicus, and we believe even opium, were employed in succession, but none of them were found to answer the purpose sufficiently. Whether the use of these substances be still persevered in, we do not know, but we rather believe that they are not, at least by the London porter brewers.'

We wish this charitable opinion were grounded in truth, but a perusal of the articles already referred to, will convince the most sceptical, that coculus Indicus, and other equally powerful poisons, are yet employed to a great extent in the brewing of ale and porter.

Although there are no authenticated cases on record of death having been occasioned by this poison, yet it is necessary that the means of recovery should be pointed out.

The symptoms of poisoning by coculus Indicus closely resemble those of intoxication by wine or ardent spirits, only the absence of the spirituous smell of breath.

The remedies to be employed are similar to those in a case of drunkenness or intoxication, viz. the use of emetics, purgatives, and bleeding, especially if symptoms resembling apoplexy supervene.

COFFEE is the seeds of the *Coffea Arabica*, which is extensively cultivated in Arabia, Persia, the East Indies, the Isle of Bourbon, the West Indies, and in several parts of North and South America.

Among the various articles of foreign growth which custom has introduced into general use, in Europe, 'there is,' says Sir J. Sinclair, 'none, tea excepted, that has occasioned more discussion, regarding its properties and virtues, than coffee.'

The best coffee is said still to be imported from Mocha, but not a third part of that sold under the name of Mocha coffee ever grew there, but is the produce of other quarters of the globe. Mocha coffee is said to owe much of its superiority to its being long kept, and the value of this article is much improved by attention to the following circumstances: 1st, Its growth in a dry situation; 2d, The berries being thoroughly ripe; 3d, When gathered, being well dried in the sun; and, 4th, Being kept at a distance from all other substances, as spirits, acid, spices, by which its taste and flavour may be injured.

The roasting of coffee is a nice process, and even the infusion of it afterwards, so as to preserve its aromatic flavour, requires much attention and experience. By a proper degree of roasting it acquires a brownish colour, and by this process its qualities are evolved when it is ground into powder for use.

We agree with Dr Hooper in asserting, that 'good coffee is by far the most salutary of all liquors drunk at meal-time.' It possesses nervine and astringent qualities, and may be drank with advantage at all times, except when there is bile in the stomach. It is said to be a good antidote against an over-dose of opium, and to relieve obstinate spasmodic asthmas. See *Asthma*.

The infusion when not too strong is certainly a wholesome, exhilarating, and strengthening beverage. 'It enlivens,' says Sir J. Sinclair, 'the spirits, quickens the memory and fancy, hence it is a favourite drink with poets, authors, and statesmen.' When taken to assist diges-

tion it should not be mixed with any other article but brown sugar, or candy, but when taken as an article of diet, more especially by sedentary or delicate people, it should be mixed with a large portion of milk. When drank very strong, or in too great quantities, it proves stimulating and heating in a considerable degree, creating thirst and producing watchfulness.

Those who desire to have good coffee should procure the raw berry, and roast as much as may be used at one time. This may be easily done on a clear slow fire, in a common frying-pan, and then immediately after ground in a coffee mill. The water should be poured on the coffee in a boiling state, and after it has remained till cold it should be placed on the fire and simply allowed to begin to boil, as nothing dissipates its fine aroma so readily as too long continued boiling.

There have many substitutes been proposed for coffee, the claims of which will be considered under their respective designations.

COLD; a disease. See *Catarrh.*

COLD is a term used in chemistry to express the diminution or abstraction of caloric, and in the theory of medicine, it means the effect produced on the body by the abstraction of heat.

The effects of a moderate degree of cold on a healthy individual is bracing and invigorating, as may be learned by contrasting the healthy and vigorous appearance of the same person, in a cold winter day, with the state of lassitude and relaxation, caused by extreme heat in summer. But extreme cold, when applied for a length of time, may destroy the vitality of a part, or extinguish the life of the whole system. Of the partial effects of cold we have already given a good example in the article on chilblains. When the cold is so intense as to affect the general system, the person has a strong inclination to sleep, and if he gives way to this feeling, he will infallibly perish. It produces in fact a degree of torpor and lethargy, ushered in by weariness, debility, lassitude, and irresistible drowsiness, ending in profound coma and death. Under such circumstances, the application of stimulants to the nostrils, rubbing the body, particularly the chest and abdomen, with hartshorn, and the exhibition of stimulants internally, if the patient be able to swallow, (such as warm brandy and water), and the use of turpentine injections should be had recourse to, and the patient should be placed in bed between blankets, if such means be at hand.

Cold, considered as a cause of disease, is so powerful that, to enumerate its various effects, would be to give a catalogue of most of the diseases to which the human frame is liable, such as inflammation, rheumatism, fever, consumption, &c., which too frequently follow exposure to cold, particularly when combined with moisture, or following the sudden transition from heated apartments. There are certain conditions of the body which also render it more obnoxious to these bad effects of cold; these are, 1st. Debility, whether arising from previous disease, intemperance, or any other cause which diminishes the vigour of the circulation, and so renders it less able to resist external impressions; 2d. When the body is deprived of any of its usual coverings, the cold will be relatively greater than at other times, from being more directly and rapidly applied to the surface, and hence the frequent bad effects, or bad colds, as they are termed, which are caught at dress parties from the difference in the clothing worn then, and at other times; for further information on this topic, consult the articles *Air* and *Clothing.*

COLIC, or COLICA, is a disease characterised by severe pain, with a sensation of twisting in the umbilical region or about the navel, sometimes vomiting and constipated bowels, frequently obstinate costiveness, accompanied with spasmodic contraction of the abdominal muscles. There are many varieties of colic which are clearly referable to different exciting causes; but which nearly resemble each other in their symptoms, the peculiar state of the digestive and of the biliary secretions, various articles of food, or merely an excessive quantity taken into the stomach, retention of the fæces, the application of cold and moisture to the feet, and certain metallic poisons, such as copper and lead; when occasioned by these latter agents, it is usually denominated painter's colic. Some have ascribed it to a metathesis or shifting of gout from the extremities, and it has been supposed that the intestines were subject to rheumatism; but there is one especial cause which we have known to produce this affection, in a vast number of cases, viz. resisting the calls of nature to evacuate the bowels, and thus allowing a too great quantity of fæces to accumulate. 'Whatever be its origin, it is probable,' says Dr Bostock, 'that its proximate cause is always the same, an irregular contraction of the muscular fibres of some portion of the intestinal canal.' When this state proceeds to a very violent degree, the peristaltic motion of the bowels is entirely inverted, and the fæces are even discharged by vomiting; the bowels have their action so much deranged, that one portion, which is much contracted, is forced into another which is less so, forming what has been called an intus-susception; the disease, in this aggravated form, has been called *Ileus*, or the *Iliac Passion.*

There is no fever necessarily connected with colic, and from this circumstance it may be distinguished from enteritis, or inflammation of the bowels. Another diagnostic mark is that in enteritis the pain of the abdomen is increased by pressure, whereas in colic, it is per-

haps rather relieved by this means; but although the diseases are essentially different from each other, yet colic, if not speedily relieved, is liable to produce inflammation.

There, however, can be little difficulty of discovering the real nature of the disease, by a careful study of the preceding description.

The *treatment.* When called to a person in colic, we often find them tossing and tumbling about on the bed, pressing their abdomen, and complaining of the most severe pain in the region of the navel. If the patient is young and plethoric, the first thing to be done, is to take from twelve to sixteen ounces of blood from the arm. Apply a mustard cataplasm, the size of our page, on the stomach, extending down to the navel; and subsequently using warm fomentations to the belly. Free evacuation must be procured from the bowels by the use of purgatives, and turpentine or assafœtida injection; the best purge is a pill composed of four grains of colocynth pill, and two of calomel, followed in an hour by a tepid solution of epsom salts.

If these medicines are rejected without producing any good effect, they are to be repeated; but as soon as the bowels are well opened, if the patient yet feels great pain, administer half an ounce of tincture of assafœtida, and from thirty to fifty drops of laudanum in two ounces of warm water as an enema, instructing the patient to retain it if possible.

If, however, the vomiting is severe, and the stomach refuses to retain medicine, four drops of croton oil are to be added to the turpentine and castor oil enema, which will frequently produce an evacuation in a very short time. We should, however, be satisfied with one or two evacuations from the bowels, especially if the stools are hard and dry; but after the first or second enema has produced such a discharge as has emptied the lower part of the bowels, the croton oil may be withdrawn from the composition, and only the other ingredients employed. In less than half an hour the cataplasm will have produced a considerable action on the part to which it is applied; it is not, however, to be relinquished, but shifted for a half hour, first to the one side, and then to the other of that space which it first occupied, and lower down or across the abdomen below the navel.

Where no cataplasm can be had, a stomach warmer may be applied, or bags of heated bran meal, or sowen seeds, to the stomach and abdomen. We disapprove of watery fomentations, as they often render the patient very uncomfortable.

In cases where the disease is attended with severe vomiting, after bleeding and the application of the cataplasm, we have sometimes administered an opiate enema at first, which, when retained, has quieted the system, and, we have no doubt, prevented the disease from proceeding to the worst form, viz. Iliac passion. As soon, however, as the anodyne or quieting effect is produced, which is generally in an hour, sometimes less, we immediately proceed to open the bowels with the enema already spoken of.

When the bowels have been fully evacuated, the pain is generally relieved, or much mitigated; but if this be not then the case, as we have already observed, opiates are to be given. When there remains much soreness of the abdomen, which is increased by pressure, indicating a tendency to inflammation of the peritoneum or the neighbouring parts, leeches to the abdomen will be proper, and the patient should be immediately placed in a warm bath as before directed, where the leech bites will continue to bleed till removed from the bath.

As there are many quarters of this country and other parts where our work may reach, where the means recommended are not to be procured, we advise the adoption of the most active purgatives and enemas of butter and salt, or a strong infusion of senna, and glauber or epsom salts.

Caution. Persons who have suffered from colic, should be extremely cautious with respect to their diet, and should carefully guard against external cold, especially of the feet, as it is found that a severe fit of the complaint always lays the foundation for subsequent returns, which may terminate in acute inflammation, or may lead to some organic disease less rapid in its progress, but equally fatal in its ultimate result. The strength may be restored by tonics and a suitable diet when the pain has completely subsided, and the bowels been well cleared out.

Hard indigestible food, rancid butter, or other rancid articles, and raw vegetables, are to be carefully avoided by persons subject to this disease. Cabbages, greens, pease, and other vegetables, should, if used, be well boiled, well masticated, and eaten with a good portion of pepper.

COLOCYNTH, OR CUCUMIS COLOCYNTHIS of the pharmacopeias, is the pulp of the fruit of the plant whose name it bears. The fruit is not unlike an orange in colour, shape, and size. There are two kinds in commerce, viz. the Turkey and Magadore.

The pulp is very bitter; hence the terms *bitter apple, devil's apple,* and other names by which it is known.

Colocynth is a powerful drastic purgative, and is either administered in substance in the form of powder, infusion, decoction, or tincture; but most frequently in the form of extract made into pills, and conjoined with other ingredients. The simple or compound extract of colocynth, more frequently the latter combined with equal parts of the mercurial, or what is sometimes called the blue pill, is a favourite antibilious pill, and may be taken in doses of five grains of

the extract, and the same quantity of the mass of the mercurial pill, formed into two or three pills every second or third night. Others prefer combining the extract with calomel, and a small portion of James's powder, or emetic tartar, and in either of these forms it is an excellent and mild purgative. These formulæ will be found under those diseases for which they are employed. The compound extract alone, formed into pills without any other addition, is a mild valuable purgative in doses of from five to fifteen grains, and has long and deservedly been a favourite medicine with the public, especially in the southern part of our island. Besides the colocynth, the compound extract contains aloes, scammony, cardamoms, and soap.

In larger doses, colocynth acts as a brisk purgative, and a dram of the extract rubbed down with half a pint of warm water, forms an excellent stimulating enema in worm cases, or as a hydragogue in dropsy.

Hufeland considers it the most effectual diuretic we possess in persons of a cold and sluggish habit of body. His mode of prescribing it for this purpose, is to boil two drams of the colocynth in a quart of beer down to a pint, of which one or two table spoonfuls are to be taken daily. He should, however, have added, the patient should drink freely of very mildly acidulated barley water.

Let it be remembered, that this truly useful medicine, *in very large doses*, operates as an *acrid vegetable poison*, producing gastro-intestinal inflammation, violent pains in the epigastrium, with vomiting and purging, the stools being mixed with blood. The sight soon becomes obscured, and this state is succeeded by vertigo, delirium, and death.

Treatment. The stomach is speedily to be evacuated by a dose of sulphate of zinc, and leeches should be applied to the abdomen. After the stomach has been emptied, new milk is to be taken in considerable quantities, and an enema of two ounces of fresh butter melted in the same quantity of water, and fifty drops of laudanum mixed, is to be administered, and if not retained for an hour, to be repeated.

This poison has seldom occasioned death, but when it has, the stomach and bowels, especially the rectum, have been found inflamed.

COLT'S FOOT, OR TUSILAGO; a well known indigenous plant, abounding in clayey soils and the banks of rivers. The flowers, which are yellow, appear early in spring before the leaves. Both flowers and leaves are used; the former are to be preferred. It has been used as a demulcent and expectorant from the earliest ages, and although neglected in modern practice, a syrup of the flowers, as directed in the article on *Hooping-Cough*, forms an excellent expectorant in coughs and pulmonary complaints. A handfull of the dried leaves, boiled in two pints of water, down to one pint, and sweetened with sugar-candy, forms an agreeable cough medicine, in doses of a wine-glass full occasionally. It has been likewise employed in diseases of the skin, but its use in these complaints is questionable. The leaves and flowers are sometimes smoked as tobacco, in affections of the lungs. The expressed juice of the fresh leaves, added to milk, forms a useful adjunct in the treatment of consumption. Two ounces of the dried flowers infused for a night in a pint of boiling water, afterwards boiled for twenty minutes, strained while hot, and formed into a syrup, with the usual proportion of sugar, forms a most appropriate addition to pectoral or cough mixtures, lozenges, &c.

COMBUSTION. By combustion is meant, that certain bodies, when heated to a due pitch, begin to emit heat and light, which they continue to do for some time; they seem also to be consumed, at least the products are frequently not apparent; but this is more an appearance than reality, as it generally arises from their being reduced to the gaseous state; and this may be proved by burning phosphorus under a bell glass, when a white flakey matter will be deposited on the sides of the glass. Combustible are distinguished from incombustible substances, as follows:—When heat is added to an incombustible substance, it arrives at the temperature of the surrounding medium, but when the heat is withdrawn, the temperature falls. Whilst, when combustibles are heated to a certain point, they generate heat and light, and continue to do so for some time, although the means by which their temperature was raised be withdrawn.

Lavoisier's theory of the phenomenon of combustion is, that it consists in the oxygen of the atmosphere giving out a quantity of caloric at the time of combining with combustible bodies. He further supposed that the oxygen gas was a compound of the matter of fire and an unknown base; and that this compound was decomposed during combustion, the base entering into combination with the inflammable body, whilst the former principle was evolved, causing light and heat. Though it is now universally admitted, that combustion is occasioned by the union of an inflammable with oxygen gas, the origin of the light and heat are yet undecided; some supposing that they both proceed from the oxygen, others, that the heat proceeds from it, whilst the light is emitted by the inflammable body.

CONDIMENTS. These are certain substances that are mixed with the food, for the express purpose of rendering it more grateful to the palate; and by some they have been divided into three, and by others into five classes. The former embracing them under the

head of the saline, the aromatic, and the acrid; the former of mineral origin, and the two latter derived from the vegetable kingdom; while by the other arrangement, they are divided into saline condiments, aromatic, oily, sweet, and acrid.

The desire for salt is an instinct universal in the human species, and common salt, or the muriate of soda, which is the chief of the *saline condiments*, is employed by all nations, whatever be their tastes or habits in other respects, and it is relished by many even of the brute animals, while certain tribes of the vegetable kingdom could not exist, or, if they did so, only in a sickly state, without an occasional sprinkling of the salt spray of the ocean. The efficient as well as the final cause of this general relish for common salt, is a point which has been much discussed, but no positive conclusion has been arrived at. It appears to us more than probable that a due proportion of salt promotes digestion; but whether it acts upon the alimentary mass, or upon the vital functions of the stomach, is not ascertained. It is also found in the blood, and in other animal fluids, and it has therefore been supposed that a supply is necessary to afford regular proportion for these fluids; but while we must acknowledge the general fact of its salutary operation, we are yet in a great measure ignorant of the manner in which it acts. When taken to excess, it is, however, highly injurious, and produces a tendency to scorbutic and other diseases.

Acrid and aromatic condiments are derived from the vegetable kingdom. The latter are almost exclusively the products of warm climates, as cinnamon, nutmeg, ginger, &c., and the former are found in various parts of the globe, some of them, as the various peppers, growing only in the torrid zone; others both in northern and southern latitudes, as capsicum; others, as mustard and horse raddish, being natives of the north. They are very generally, however, relished by the inhabitants of all countries, and this in a way which would seem not to proceed altogether from their grateful effects upon the palate, for many of the acrids can scarcely be considered as possessing any qualities of this kind. In addition to these classes, Dr Pearson enumerates oily, sweet, and acid condiments. Of the first, (the oily) butter is most frequently used, and when of good quality, recently made, and well preserved, is a very wholesome condiment; but there are many constitutions with which it does not agree, especially the bilious and dyspeptic. Lard, suet, and other animal and vegetable fats, especially olive oil, which is sometimes called sallad oil, and is a nutritious condiment, as well as the other oils and fats, are highly injurious to delicate stomachs. Among the sweet condiments, sugar holds the first rank, and it is antiseptic, nutritious, and laxative, and the refined is more nutritious than the brown. Upon the whole, sugar, when judiciously employed, is a very wholesome condiment. The next of this class in relative importance is honey, which is laxative and nutritious, but varies much in quality from the kind of flowers from which it is produced; some kinds of honey being very liable to produce heartburn, flatulence, and colic, and indeed, honey in general is better suited as a condiment for the old and middle-aged than for youth. The best honey in these kingdoms is that produced from heath and mountain flowers, or from buck wheat. The last division, the acid condiments, are, next to salt, mustard, and pepper, perhaps the most generally employed in this country. As vinegar or vegetable substances, preserved or pickled in vinegar, are becoming every day more common, those in which acidity prevails, or in which it is the chief characteristic. even vinegar alone is a refreshing stimulus to the stomach; but those subject to debility of that organ, affections of the bowels, or gouty or calculous affections, should studiously avoid this class of condiments, among which lemon, and orange, and other acid juices, may be included. To these divisions, a sixth might have been added, including the jellies and jams of acid fruits, formed by a combination of the juice of these fruits and sugar, and sometimes rendered more acid by the addition of a little lemon juice.

CONFECTIONS. The London College considers this class of pharmaceutical preparations as one and the same with electuaries and conserves. It is therefore not uncommon to hear the conserve of roses called the confection of roses, or the electuary of senna, denominated the confection of senna. Confections, conserves, and electuaries, are those preparations which are in general comparatively of no great activity, consisting either of fresh or recent vegetable matters, beaten into a uniform pulpy mass with sugar; and of this description is the confection of almonds, arum, hips, mint, orange peel, and rose petals or leaves, which are more generally known by the name of conserves or confections. Another class now embraced under the title of confections, are light and sometimes earthy powders, mixed with syrup, honey, or treacle into the proper consistence, which is that of thick honey. The aromatic confection, and those of rue and scammony, are examples of this kind which, in Scotland and Ireland, more generally receive the name of electuaries.

Confections are useful as vehicles for giving form to more active medicines. They should be kept in closely covered delft china, or saltware jars, to preserve their moisture; and at sea may be kept in a mixture of common salt and nitre in a cool place.

CONIUM MACULATUM; common hemlock. See *Hemlock.*

CONJUNCTIVA; the mucous membrane which lines the eyelids, and is reflected from them over the forepart of the eyeballs, and downwards to line the nasal duct. See *Eye.*

CONSUMPTION; a wasting of the body. See *Phthisis* in Appendix.

CONTAGION, in the general acceptation of the term, means a something which, coming in contact either immediately or intermediately with the body of an individual previously in health, engenders a disease in that individual of a nature similar to that existing in the individual from whom it proceeds; in one word, it implies a specific poison. This subject is yet a disputed one even among the faculty, and a true glimpse of the case cannot be obtained, without at the same time inquiring into the difference of the meaning attached to *infection*, or the exact line of demarcation between contagion and infection. Let one illustration suffice. An individual visits Constantinople when the plague rages in that city, and in consequence of his residence there, falls sick of the plague, without having come in contact in any way with the matter that shall have emanated from the body of another person who is the subject of plague. This individual, in the language of the schools, is said to have received an infectious malady, or in other words, become infected with the plague—the infection being communicated through the medium of an unhealthy air or atmosphere; whereas, to constitute contagion, it is necessary that the individual should have come in contact with another individual labouring under plague, or had some communication, either direct or indirect, with a something issuing from the body of the sick. In either case, therefore, a contact with a poison is, strictly speaking, supposed, as in the one case the person inhales or breathes the poison, and in the other, the skin, either from touching the patient, or from wearing clothes which had been worn by the patient while labouring under the plague, communicates the contagion, which is received into the system in the same way that the small-pox virus is received by the absorbents of the skin, and produces a characteristic disease. Dupuytren observes, that *infection* is the contamination of the air by persons confined in low, close, ill-ventilated, and dirty situations, and by vegetable and animal substances undergoing decomposition, the emanations with which the air is thereby charged acting on man as poisonous agents. The sources of these emanations are in proportion to the grade of atmospheric humidity and temperature, and to the nature and quantity of the miasms the air contains. But as Dr Copland judiciously remarks, 'the chief fault of distinctions drawn between *infection* and *contagion*, and of the arrangement of the various modes and kinds of these agencies is, that both the one and the other are based upon pre-conceived and narrow views of their nature and operation; involving, moreover, various opinions by no means consonant with the usual procession of morbid actions. The obvious course, therefore, is to make distinctions only where differences actually exist, applying terms with precision, according either to their received meaning, or to the sense in which it is desired to receive them, and to arrange phenomena according to the relations established by close observation and candid description.' We shall, therefore, confine ourselves, under this head, to the conflicting opinions which exist respecting one disease, namely, Cholera; and thus exhibit some feeble ray of light to guide the inquiries of those who wish to investigate this truly interesting topic more minutely. The question then recurs, Is this disease infectious or communicable? We mean not simply, that it may pass from one individual to another, but that it may pass from persons or clothes containing its fumes, and be communicated to others through the medium of the air. In the outset, it must be admitted that it arose spontaneously, although we are perfectly ignorant of the circumstances connected with this event, or the precise date or locality of its birth. The following are the chief arguments adduced in proof of its contagious and infectious character: First, It spread over countries which, in respect of climate, soil, relative elevation, and population, differ greatly from those of the spot in which it was discovered, or first displayed itself. Second, Its progress was uniform and progressive, often opposed to violent monsoon winds. Third, Bodies of troops in motion have been attacked, and retained the disease, while it was unknown to the fixed inhabitants of the country through which they passed; and one of two corps in a camp has been attacked, and the other has escaped. Fourth, Ships arriving from other parts of the world, have never suffered before reaching the shore; and in India, the instances of the disease appearing at places immediately after the corps of troops suffering from it had arrived, are very numerous. Fifth, In its progress, cholera travelled chiefly by the great roads, affecting places on either side, without extending to those situated at a distance from them. Sixth, The sick in hospitals labouring under other diseases, lying near patients ill of cholera, have been attacked by the disease; servants have sickened after attending their masters, who have died of it; and medical officers in regiments, after intimate intercourse with the sick, have been seized, whilst all the other officers in the same regiment have escaped. Lastly, Places surrounded by cordons, and guarded by strict quarantine laws,

have escaped, although in the direct progress of the disease. This last is the principal argument used by the contagionists in behalf of establishing a strict quarantine, and even cordons. The facts on the other side are, First, The direction in which the disease progressed, was too uniform to depend on contagion. Second, Countries through which troops suffering from it have passed, have remained exempt from the disease. Third, The disease seemed to wear itself out, in a short time, in every place where it had raged, and yet appeared with resuscitated vigour on its arrival at another place, where it was again in a short time stripped of all its fearful qualities, and rendered impotent as before; and thus, in the descriptive language of Dr Hancock, 'like some vagabond intruder, who disguises an enormous but short-lived voracity under the semblance of impaired appetite, his visits are characterised from place to place, wherever he is permitted to gain a footing in this habitable globe.'

Doubtless, the question respecting the contagious, infectious, or non-infectious nature of certain diseases, is of great practical importance, as upon the opinion formed, so does the individual act. Thus, it was no uncommon thing for the nearest and dearest friends, entertaining a belief in the highly contagious nature of cholera, to desert their connections as soon as they were seized with the malady, and fly to some distant part of the country to avoid their fate, and leave their suffering relatives to the mercy of strangers. Much, it is true, may be said on both sides; but we deny that cholera partook of, or ever was distinctly marked by, the true characteristics of a contagious disease; and for our own part, we would as readily and cheerfully, from any personal risk we were likely to incur, be confined to the care of a ward of a cholera as of a typhus or scarlet fever hospital. We, however, cannot help agreeing with the sentiments so well expressed by Dr Uwins, in his excellent paper on *Contagion and Quarantine*, in the Quarterly Review, that 'Upon the whole, it seems probable that the distinction set up between contagious and pestilential, (or between contagious and infectious disorders) does not, in truth, obtain any thing like the extent commonly supposed, and that the specific quality of variola (small-pox) itself, is but different in degree (it is allowedly greatly different in this respect) from the mere infection of plague. It seems that both are occasionally spontaneous in their origin, more or less communicable in their nature, pass from individual to individual in the same manner, and are susceptible of modifications to an almost incredible extent.' These remarks apply with equal force to every infectious or contagious disease, although the *modus operandi* of the infection may not be so clearly recognised as in the diseases alluded to by Dr Uwins. The chain of evidence is, however, yet too incomplete for a full, true, and rational decision, on which such practical public or private prophilactic measures may be resorted to, as will ensure even an ordinary, not to say a satisfactory and triumphant, share of success. Still, keeping cholera in our view, even in that individual disease we have yet to be put in full possession of many circumstances connected with the nature, localities, habits, and police regulations of those places which suffered, as well as of those who escaped, the ravages of the disease. Filth and defective nutriment, hurry and fatigue, anger, intemperance, and the depressing passions, all doubtlessly act powerfully as predisposing and accelerating causes of pestilence; whilst the opposite of these conditions—cleanliness, a full and generous diet, temperance, calmness, and regularity—not only act as prophilactics, but as antidotes. These facts, while they show the propriety, nay, the vast importance, of yet farther inquiries into the most effectual means of preventing the introduction, and checking and arresting the progress of contagious and pestilential diseases, when they have actually visited a country, at the same time point out the line of duty which is open to the legislature, the public, and individuals. The indescribable monster which contagionists and ultra-contagionists have erected in their wild imaginations, may indeed act as a bug-bear not only to frighten children and imbeciles, but many even of those from whom better things might have been expected, from the paths of propriety and usefulness; but the good man, aye, and the good woman too, in company with the benevolent physician, will be found at their post in such circumstances, treading in the paths of the merciful Samaritan, and endeavouring to imitate Him who went about doing good, and healing *all* manner of sicknesses and diseases among the people.

CONTRAYERVA ROOT. This root is a native of South America, and is from one to two inches long, about half an inch thick, full of knots, and of a reddish colour. Long, tough, slender fibres shoot out from all sides of it, and these are sometimes loaded with knotty excrescences. The root is of a pale colour within, of a somewhat astringent taste, bitterish, with a light and sweetish acrimony. It has a peculiar aromatic smell. The fibres of the root have little smell or taste, and the tuberous part only should be used, although there is no doubt it is committed to the mortar or drug-mill as it arrives.

It is considered tonic, stimulant, and sudorific, and is used in the end of typhoid and nervous fevers, the sinking state of dysentery, and the fever and diarrhea of infants during teething. It is given in powder, in doses of from twelve to thirty grains, in peppermint water

two or three times a day, and the compound powder of the London Pharmacopeia, which is used in the dentition of children, is composed of five ounces of the powder of Contrayerva, and one pound and a half of prepared oyster-shells intimately mixed.

CONVULSIONS. See *Epilepsy*.

COOKERY. See *Dietetics*.

COPAIVA BALSAM, or as it is sometimes written, COPAIBA, or vulgarly CAPIVI, is a yellowish transparent liquid, of the consistence of syrup, having a peculiar but not unpleasant odour, and a bitter pungent taste. It is obtained by making incisions into the stems of the copaifera trees. No less than sixteen species of the copaifera yield the balsam in a greater or less proportion, and likewise somewhat different in quality, according to the species of the tree from which it is obtained, its age, and the season of the year; the old trees, however, furnish the best. Copaiva, therefore, varies in colour, consistence, odour, taste, and in the relative quantities of the oil and resin which it contains. That obtained from Brazil, and other parts of South America, is thin, clear, and of a pale colour, pleasant aromatic smell, and of an acrid bitter taste; while that procured from the Antilles, Martinique, Trinidad, and other parts in the West Indies, is thick, not transparent, has a golden yellow colour, a less agreeable odour, being nearly allied to that of turpentine. The balsam consists of volatile oil and resin, one hundred parts yielding on an average about forty or forty-five parts of oil. The pure balsam is soluble in alcohol, ether and the expressed oils, and miscible in distilled or soft rain or river water, by means of mucilage of gum arabic, or yolk of egg. If pure, it dissolves magnesia, and becomes transparent; and if shaken with ammonia, it becomes clear and transparent, neither of which results will take place if the balsam is adulterated, which is too frequently the case.

Copaiva has long been regarded as a medicine of considerable efficacy in a variety of complaints, and possesses diuretic, anthilmentic, stimulant, and in large doses, purgative qualities, and is most generally prescribed in cases of urethritis, gonorrhea, leuchorrea, gleet, hemorrhoidal affections, and worms. It is given in doses of from ten to fifteen drops in emulsion, in cinnamon or peppermint, or in common water; when pure, the drops will retain their spherical shape when dropt on water, which they will not do, if mixed with castor oil, or any other oily liquid.

There are no officinal formulæ of copaiva in our national pharmacopeias.

The balsam is employed in a solid form, and likewise inclosed in thin capsules, of a round or oval shape, about the size of a small bean, or of a large pea. The taste and flavour are in this way concealed, and the capsule is dissolved or burst in the stomach.

The balsam, used plain, is preferred by many to any other form, and it is certainly very convenient. It may be taken in doses of from four to ten or more drops, on a lump of sugar, or dissolved in four parts of rectified spirit, may be given in peppermint water, or the sweetened infusion of ginger.

An enema of copaiva is frequently employed, and it is easily prepared, by forming an emulsion with thick mucilage, or yolk of egg, in the same way and in the same preparations as the castor oil and turpentine enemas are prepared.

COPPER; a well known metal, of a reddish colour, of considerable lustre, and possessing great malleability and ductility. Copper is found, though rarely, in its metallic state, but more generally in union with oxygen or sulphur; and sometimes with other metals. The sulphuret, or more common form in which it is found, is obtained principally in Cornwall, Anglesea, Hungary, and Cuba.

The principal preparations of copper used in medicine are the ammoniaret, sulphate, or blue vitriol, and the subacetate or verdigris. The first is used internally, in cases of epilepsy and other diseases, but should never be prescribed except by a professional person. The two remaining salts of copper are principally used in the form of lotion or ointment, as external applications to sores. The blue vitriol is used to destroy exuberant and unhealthy granulations, or proud flesh, as it is termed; whilst verdigris ointment is useful in some indolent sores, but should always be used with great caution, as it may be absorbed, and so produce poisonous effects. The sulphate or blue vitriol is also sometimes used internally as an emetic, in cases of poisoning by narcotics. It is given in doses of five or six grains dissolved in water, and may be repeated twice or thrice, if vomiting is not induced by the first dose; but great care is requisite to clear out the bowels after using it, by some oily purgative, as if it remain in any quantity, it may itself act as an irritating poison.

Poisoning from Copper. Copper, in its metallic state, does not seem to be easily acted on by the juices of the stomach, and hence is not an active poison in this form, as is proved by many instances of children swallowing small copper coins, buttons, &c., which have been passed by stool, having undergone but little alteration, and produced no bad effects. The most ordinary manner in which poisoning by this metal is produced, is from cooking articles of food, particularly vegetables, containing any acid principle in copper or badly-tinned copper vessels, or from using water or other articles cooked in foul copper vessels. In the first of these cases, the acid contained in the article cooked acts upon the copper, forming generally

the subacetate or verdigris, which is an active poison. In the second class of cases, the water or food cooked dissolves either verdigris or carbonate already formed by the action of the atmosphere or other substances on the copper, and which have not been removed by cleaning it. Pickles are also sometimes prepared in copper vessels, which imparts to them a fine green colour; but this is exceedingly dangerous.

The symptoms of poisoning by copper are—giddiness, vomiting, thirst, coppery taste in the mouth, acute pain at the epigastrium, oppression at the chest, griping pains, eruptions on the skin, paralysis, delirium, and death.

Treatment. As there is usually vomiting from the effect of the poison, emetics are unnecessary, unless sickness, and pain at stomach, without vomiting, are present, when fifteen grains of white vitriol or sulphate of zinc may be given, or ipecacuan in powder, with sugared water; when emetics are not required, mucilaginous drinks, oils, butter, and milk, may be used, or the white of eggs, which is the best antidote. The prussiate of potash has also been used as an antidote with success, but all acids, such as vinegar, &c., should be carefully avoided, as they increase the activity of the poison.

COPPERAS; a name given to the sulphates of copper, zinc, and iron, which are also termed respectively blue, white, and green vitriol.

CORIANDER SEEDS. These seeds are the fruit of the *Coriandrum Sativum*, of the class *Pentandria*, order *Digynia*.

This plant is a native of the south of Europe, where it grows in such abundance as to become troublesome to the farmer, choking the crops of wheat, and other grain; in Essex, where it is cultivated for the London market, it has become naturalized, and is usually found in corn fields, the sides of roads, and about dunghills. The green herb was long supposed to be poisonous, but it is eaten as a cordial in Spain, Egypt, and other parts.

The seed, which is the only part used in medicine or domestic economy, when dried, has an aromatic odour, and grateful pungent taste. Their virtues are carminative and stomachic, are used entire, in doses of a teaspoonful or more, and are in this way eaten by tipplers, to conceal the flavour of spirits on the breath, and by others, for dispelling flatulence in the stomach and bowels, and for creating an appetite, if chewed an hour before meals. The powder is likewise sometimes used by itself, in doses of from a scruple to a dram, but more frequently mixed with other stomachic and bitter powders, of which they cover the taste, without impairing the virtues. They enter into the composition of the infusion of tamarinds and senna, of the compound tincture of senna, and the confection of senna of the pharmacopoeias. Dr Cullen believed that, more than any other article, they contributed to correct the odour and taste of senna. He says, 'That, infused along with senna, they more powerfully correct the odour and taste of this, than any other aromatic that I have employed; and are, I believe, equally powerful in obviating the griping that senna is very ready to produce.'

Coriander seeds are used by the brewer, distiller, and confectioner. By the two former, to give flavour to their liquors, and by the latter they receive a coating of sugar, more or less thick, forming an agreeable confection, not only harmless, but useful to those dyspeptics who are annoyed with flatulence, as by eating about a quarter of an ounce before or along with their meals, or on the top of bread and butter, they may prevent many twitches of pain and uneasiness.

CORNS. By the term corn, as used in domestic surgery, is generally meant an excrescence shaped like a nail, increasing gradually in size till it reaches the top, although sometimes its root or under point, in place of being sharp and pointed, diverges and spreads like the root of a tree. The root or point is buried in the deep layers of the epidermis, which on the foot is thick, and often reaches down to the periosteum or covering of the bone, and in some very severe cases observed by Dudon and others, to the articular capsules of the joints. Independently, however, of such cases, which are happily not frequent, if the skin which supports the corn is well soaked in warm water, the corn becomes, with a little friction or scraping, detached of itself, and the surrounding skin then appears sound and in a natural state. And were this simple plan more frequently adopted, and every part having the appearance of a corn, or hardening, by undue pressure, examined each time the feet are bathed, corns would not so readily progress to that painful and harassing state in which we see them so often exist, both in young and old. The many changes that have obtained on the form of the boot and shoe, have been blamed for the very frequent occurrence of corns, although corns are not confined exclusively to the feet.

Corns seem to be formed of a concrete mucus which easily imbibes liquid, with which it may be placed in contact, and becomes softened in various degrees. We find in it neither vessels nor nerves; but there is under some corns a serous cyst or a sanguineous extravasation, which, produced by extreme pressure, may perhaps be the ovum from which the corn has sprung up.

Two methods of operating upon corns have been generally adopted; the first, by excision. The skin and the corn are to be softened by means of a foot bath. The operator then covers

his knees with a towel or other cloth, sits with his face towards the patient, and receives the foot on or between his knees. Then with a sharp curved knife or bistoury, which has been previously dipt in warm water, he peels or cuts away the upper and central part of the corn, until a red tint, and the production of pain, indicate the impropriety of excavating it further. He then pares the edges of the corn in the same manner, taking care not to intrude upon the healthy skin that surrounds. If, in the centre of the corn, several white or black spots should be observed, it will be requisite to endeavour to raise them with the point of the bistoury, or if a cyst, (that is, what is vulgarly called a bealing,) or sanguineous, or bloody extravasation, should be met with, it should be freely opened and the matter discharged. In domestic practice, a razor or a penknife is usually employed to perform the operation, but a bistoury or curved knife is to be preferred; where such is not to be had, a penknife and a fine darning needle to pick out the spots will answer the purpose. The part may then be bathed with tincture of myrrh, and covered over with adhesive plaster spread on leather; indeed, equal parts of mercurial and adhesive plaster form the best corn plaster.

The second method of operating is by cauterization. On the continent various methods have been adopted, such as applying inflamed wood to the corn, dropping melted sulphur, or the covering the corn with spiders' web, lighting the web and allowing it to burn on the surface. These, however, although frequently employed, are clumsy and painful operations. If after treating the corn as directed, in the first case by having its centre and its margin pared down, there be seen many small black points, and if, by continuing the paring a little farther, blood begins to ooze from a number of small vessels not much thicker than a horse hair, then the cutting process is to be stopped, and lunar caustic (nitrate of silver) applied to the bleeding vessels, and the whole surface of the corn. The application of a few drops of the muriated tincture of iron, with the addition of one or two drams of muriatic acid to each ounce of the tincture, will answer equally well, and even better than the lunar caustic. After either of these applications have remained on the roots of the corn for three or four days, the surface may be again pared off as before, and if there still be felt pain on pressure, and proof that the roots have not been destroyed, apply the caustic or tincture as before, and go on in the same way till this has been accomplished.

The aged, who suffer much from corns, will find the following a useful defensive plaster for covering the surface of corns after the operation of paring, where there is much pain and tenderness.

Adhesive Plaster, one ounce and a half.
Mercurial Plaster, half an ounce.
Fine Powdered Opium, one dram and a half.
Extract of Belladona.
——— Hemlock.
——— Henbane, each a dram.

Melt the adhesive and mercurial plasters over a slow fire, break down the extracts into small portions about the size of small pills, and add to the melted plasters still on the fire, stirring the mixture so as to render the mass uniform; then add the powdered opium, still continuing the stirring, till the whole is intimately united in the form of a plaster. If it is too stiff, a tea spoonful of Venice turpentine may be melted along with it. This is to be spread on fine shamoy leather, a soft old glove will answer the purpose, and applied to the corns. Some wear the plaster with a hole in the middle; this answers best, as it throws the pressure on the surrounding parts, and allows the corn to be pared as it grows up. Where corns are on the sole of the foot, a soft sole of felt or other substance may be introduced, in which a hole may be made large enough to admit the part affected, and thus prevent pressure on the corn. In all cases the whole corn must be removed, or else it will infallibly return, and the oftener a partial removal is resorted to, the more speedy will its return be.

As corns are in all cases the consequence of repeated and long continued pressure by tight shoes, or by high-heeled shoes, throwing the weight of the body on the toes, which become wedged and compressed in the end of the shoe, all such exciting causes must be avoided. Much walking or standing must, for the same reason, be avoided for a time, if any thing like a permanent cure is desired.

CORROSIVE SUBLIMATE, OR MURIATE OF MERCURY, OR OXYMURIATE OF MERCURY, or *Perchloridis Hydrargyri*. This is the most powerful and dangerous of all the mercurial preparations, and at the same time one of the most useful. It is sometimes sold in the shops in crystals, and at other times in powder. The crystals are white, compact, semi-transparent, and prismatic, and have an acrid, styptic, and durable metallic taste. They are soluble in eleven parts of water at 60°, and in 3·8 of alcohol, and are partially decomposed by light.

Corrosive sublimate possesses alterative, antisyphilitic, stimulant, and other properties, and is used in the treatment of various complaints, more especially venereal, cutaneous, rheumatic, dropsical, and hepatic; and it is peculiarly adapted for cases in which it is necessary to produce a speedy mercurial action, although its effects are not so permanent as those of some of the milder mercurials. When given in substance, which it should never be, but under the direction of the most skillful, its dose is from one-eighth of a grain to a grain, in the form of pill, combined with extract of poppies, once a day. Its

only officinal preparation is the liquor or solution.

Liquor or *Solution of Sublimate.*

Corrosive Sublimate of Mercury, four grains.
Distilled or Rose Water, seven ounces and a half.
Rectified Spirit, half an ounce.
Dissolve in the water, and add the spirit.

This preparation facilitates the administration of minute divisions of a grain of this active medicine, one fluid ounce containing only half a grain of the sublimate. It is given in doses of a fluid dram to an ounce, gradually increasing the dose. It is sometimes given mixed with mucilage, in the form of enema, when the stomach will not retain it, and in that case, the dose should never be mixed with more than one or two ounces of the mucilage, or it will not be retained. A gargle for venereal sore throats is formed by dissolving three grains in twelve ounces (three gills) of rose water, and adding four ounces (one gill) of simple syrup.

The Yellow Lotion, or *Yellow Wash.*

Sublimate, one scruple.
Lime Water, five ounces, mix.

This is the formula employed in the Glasgow Infirmary, and is in very general use as a wash to venereal sores.

It should not, however, be forgotten, that corrosive sublimate is a most virulent mineral poison even in a very small quantity. The most marked symptoms are an acrid, styptic, metallic taste in the mouth, with a sensation of fullness and burning in the throat, copious salivation, teazing pains in the stomach and abdomen, nausea, and great anxiety, frequent vomiting of a fluid, occasionally mixed with blood, diarrhœa and tinesmus, or a frequent desire of going to stool, follows. The pulse is quick, small, and hard, there is great prostration of strength, amounting to syncope or fainting, difficult breathing, cold sweats, universal cramps, convulsions and death frequently close the scene, when timeous and judicious means are not employed.

The treatment is happily very simple, as one of the very best remedies that can be employed is the white of egg diluted in cold water, in repeated doses.

The warm bath, a large sinapism to the pit of the stomach, and bleeding if the pulse be quick and hard, are means that should always be employed in such cases. If white of eggs is not at hand, large quantities of almond emulsion should be used, and every other substance containing albumen ; the albumen, by decomposing the sublimate, reduces it to a submuriate, or in other words, calomel, which is carried off by purging.

The patient should subsist upon animal and vegetable jellies, carrahageen moss, sago, arrow root, ass's milk, natural and artificial sweet whey, and other diluent and demulcent drinks, for some time after. Strong veal soup, thickened with sago or arrow root, should likewise be administered daily as an enema, and the stomach and abdomen should be covered with an opiate plaster, as great tenderness remains for some time.

Those who have occasion to use strong solutions of sublimate, or even indeed weak ones, either in spirit or water, should always have the bottle in which they are contained labelled Poison, in distinct characters, and the cork carefully caped and tied down.

COUGH. This term is so familiar, that almost every child knows its meaning ; but technically, the act of coughing consists in one or more abrupt and forcible expirations, accompanied by a contraction of the glottis, trachea, or wind pipe, and upper bronchial or air tubes. The muscles chiefly concerned in the act of coughing are the abdominal and intercostal muscles, (see *Abdomen* and *Chest*) as will be found explained in the articles referred to, and in that on *Respiration.*

The common cause of cough is well known to be phlegm, or some other matter irritating the air passages, and the object or final cause of the cough is to expel or expectorate this matter. Some parts of the bronchial membrane are much more sensitive than others; that lining the glottis and larynx is excessively so, and the least irritation of it is enough to excite coughing. It will at once be perceived why the sensibility of the air tubes should be greatest at their entrance, and the wisdom of such a provision; it is, as Dr Williams has well expressed it, ' The *door keeper* placed there to exclude, or, by calling other forces to its aid, to expel, anything improper which may intrude.' This is quite clear, when it is considered that the trachea or wind pipe, and large bronchia, have less sensibility; for foreign bodies have been known to lodge in them for some time, without causing any coughing; so that some have supposed they have nothing to do with this symptom, (for a cough is not itself a disease, but is the most common symptom of disease of the chest); but when the sensibility of these parts is increased by inflammation or nervous excitement, any thing irritating them will also excite coughing. Indeed, every other part of the tubes have also a conservative sensibility, which may bear a little, but is soon roused into activity by continued irritation, and appears equally unwilling, with its more favoured associates, to permit any injury to the system.

As we have stated, cough is merely a symptom of disease, and therefore must always be studied and treated with reference to its cause; for which reason we will not at present speak of the various remedies employed, but leave that to be treated of when describing the various diseases of the lungs and air passages, in our

articles on *Lungs, Inflammation of the, Phthisis, Croup, Hooping Cough*, &c.

COUP DE SOLEIL, or *A Stroke of the Sun.* This is an accident rarely occurring in this climate, but one to which emigrants to tropical climates are liable. It is caused by the direct action of the sun's rays, when the head is insufficiently protected, and usually occurs when the weather is calm and sultry. The patient generally falls down in a state resembling apoplexy, and sometimes dies on the spot; but more frequently re-action takes place, ending in inflammation of the brain. The treatment is the same as that recommended in apoplexy, and inflammation of the brain.

One of the best preventatives is lining the light hat or cap, usually worn in warm climates, with flannel, which is a bad conductor.

COWHAGE, OR COWITCH; the stiff hairs on the pods of the Dolichos Pruriens. These hairs are stiff, brown, short, prurient, inodorous, and insipid, and are employed as a mechanical vermifuge or anthelmentic, especially in the round worm or lumbrici. For this purpose, the pods are dipped in simple syrup or molasses, and the hairs scraped off with a knife, till the syrup or molasses is saturated; and of this, a tea spoonful may be given, or from five to ten grains of the hairs scraped off, may be mixed with a table spoonful of treacle or syrup, and taken in the morning. Fasting, and a dose of the powder of scammony and calomel the following morning, or of senna tea, or powder of rhubarb may be prescribed. Although this medicine frequently proves efficacious, it has latterly fallen into disuse.

COW POX. See *Vaccination.*

CRAMP; a powerful spasmodic affection of the muscular fibre. Every muscular part is subject to this painful affection; thus cramps attack the limbs from exposure to cold and wet; keeping the limb in a constrained position; and often without an apparent cause. Cramp in the limb often gives rise to fatal events, as when it occurs whilst a person is bathing, thereby disabling him from swimming.

Cramp in the stomach is always a very painful, and often dangerous affection, and is generally dependent on vitiated state of the bile, or from some indigestible article of food irritating the stomach. It requires active treatment, by bleeding in the plethoric; and where the pain and difficulty of breathing is great, the exhibition of anti-spasmodics, as ether and laudanum; emetics, sinapisms, and hot cloths to the abdomen, and the warm bath, if it be possible to procure one, followed by enemata and purgatives. Cramps in the limb may be removed by the sudden application of cold, or by placing the limb in warm water, frictions with hartshorn and laudanum, or by applying a tight ligature above the part for a short time. Cramp in the thighs and legs also occur during labour, from the pressure of the child's head on the parts within the pelvis; but in this case, little can be done to relieve it, until the child is born, when it ceases spontaneously.

CRANBERRY, COMMON; or the *Oxycoccus Palustris, P.S.* This favourite berry is to be found in large quantities in the mountainous and boggy districts of England and Scotland, and are little inferior to the Russian. They form an agreeable preserve, and are not usually hurtful to the healthy stomach.

CRANE'S BILL, or the *Geranium Maculatum.* The root of this plant possesses the most powerful vegetable astringent properties. A decoction of the bruised and sliced root is ordered to be prepared, by boiling an ounce in half a pint of water for half an hour, and straining while hot; the dose is from half an ounce to an ounce, and of the root in powder from ten grains to half a dram. It is used in diarrhæa and dysentery, after the inflammatory or rather acute inflammatory symptoms have disappeared; and in spitting of blood and hemorrhages from the alimentary canal. It is likewise employed externally as a styptic.

CRAWBERRY, or *Vacunum Vitis idæa*, or Red-bilberry, Red Worts, and is also called Whortle-berry, or Blackberry. This is exceedingly plentiful in Scotland, and in the mountainous heaths in the north of England. The berries have a grateful acid flavour, with somewhat of a peculiar taste, which we think has improperly been denominated bitter. They are like other wild fruits of the same nature, such as the bilberry, eaten alone, or with milk or cream, and sugar; or made into tarts, jellies, or jams.

CREAM is the oleaginous part of milk, and there cannot be found a more improper kind of food for weak stomachs. It is very liable to turn rancid and to disorder the bowels when taken too freely, but with strong stomachs who can digest it, there is no doubt it furnishes a considerable portion of nourishment. Those who drink wine after dinner should avoid the use of cream, such as curds and cream, strawberries, apple pies, and other dishes in which fashion has introduced the use of cream, as the strawberries or apple pies would be far better without the too rich sauce of cream, and the latter more easily digested if its crust were given to the pigs. Wine, taken after cream, ferments, and coagulates the contents of the stomach into a most indigestible cheese, which has been sometimes the only meal the gourmand ever required.

In some countries, as in the western parts of England, the cream is not suffered to rise naturally, but is gathered from it after it has been thickened upon a moderate fire, and this is denominated *scalded, or clouted cream*, and

is considered to be less offensive to the stomach than raw cream.

As cream is considered a luxury at tea, and some individuals cannot use either tea or coffee without it, we append the following mode of preserving it fresh for several months. Take twelve ounces of sugar, and dissolve it in as many ounces of water over a moderate fire. After the sugar is dissolved, boil it in an earthen vessel for about two minutes, after which add immediately twelve ounces or three gills of fresh cream, and mix the whole uniformly over the fire; then suffer it to cool, and bottle it for use, carefully adjusting the cork. It should be kept in a cool place.

CREAM OF TARTAR; the supertartrate of potash. See *Potash*.

CREOSOTE. M. Reichenbach, in 1832 or 1833, discovered in pyrolignic acid, and in pitch and tar, a peculiar oleaginous liquid, to which he gives the name of *creosote*. It is colourless, transparent, and possesses a very peculiar odour, which resembles that of smoked meat, and somewhat also that of tar. Its taste also is very caustic, and it is of the consistence of oil of almonds, having a specific gravity of 1037.

This substance soon became celebrated for the cure of not only one, but a variety of diseases, very opposite in their character and their causes. It was reported as highly useful in cases of confirmed consumption, hysteria, epilepsy, chronic diseases of the skin, indolent ulcers, cancers, hemorrhage, leuchorrhæa, burns, syphilitic and scrofulous ulcers, and in several affections of the stomach, and in toothache.

In all of these cases it has failed to realize benefits to the extent which its admirers conceived it had produced, and would continue to produce. In the latter complaint, viz. toothache, from caries of the tooth, one drop, properly applied, will no doubt effect almost immediate relief the same as nitric acid, or any other caustic substance, and we have no doubt it may be applied externally, when properly diluted, in some cutaneous eruptions with advantage. It may likewise be turned to account in domestic and rural economy. A piece of flesh placed in a solution of this liquid for half an hour, may afterwards be exposed to the heat of the sun without fear of putrefaction, and in eight days it becomes quite hard, has a reddish brown colour, and acquires the odour of smoked flesh. Fish may be preserved in the same way, and there cannot be a doubt but that the creosote possesses the same antiputrescent qualities as the pyrolignous acid and tar water, and that with a little more experience, from careful observation, it may prove a useful acquisition both to medicine and the useful arts of life.

Our chief reason, however, for noticing this chemical fluid, is its *poisonous quality*, and the pernicious influence it exercises on the gums when improperly used in toothache.

Its poisonous character has been sufficiently established by experiments on brute animals, and Diverge mentions the case of a lady who was employing creosote for the relief of toothache, inflammation of the gums, and the lining of the cheeks supervened, and terminated in an abscess of the cheeks, with ulceration of the gums. Professor A. T. Thomson says that he has seen two cases in which it operated in a manner which might be regarded as poisonous. As therefore it is even so common as to be employed by the uninstructed, and as it may be overdosed or taken by mistake, it is proper that the public should be familiar with its mode of acting, and the extent of its influence on the human body. To insects, even when largely diluted, it proves speedily fatal, and even on dogs, in very small doses diluted, and the dose gradually increased, it produces the most disagreeable symptoms, which terminate in death.

To a dog was given two drams of creosote diluted with half an ounce of water, on which it produced immediate prostration of strength; the head of the animal hung down, and it fell upon the ground; deafness, vertigo, a fixed gaze, and a complete loss of every sense followed. The respiration was rapidly interrupted by the formation of a mass of stringy mucus, which choked up the larynx, and brought on a suffocating cough, which threw off masses of thick albuminous-looking sputa; by degrees the embarrassment of breathing increased, rigors supervened with spasm, and the animal died at the termination of two hours. On opening the body, every tissue smelt powerfully of creosote, appearances of inflammation in the mucous tissue were evident, the lungs were gorged with dark coloured blood, the brain was in a natural state, and some small clots only were found in the cavities of the heart.

If taken in poisonous doses, creosote appears to operate as a powerful stimulant, and to destroy life by the nervous sympathy which it induces. It is easily distinguishing this substance when taken as poison, especially if any remains unswallowed; its smell, as we have already described, closely resembles that of smoked meat and tar, and it instantly coagulates; albumen. for example, if dropt on the white of an egg dissolved in a small glass of water, coagulation or thickening will almost immediately take place. Water dissolves about one-eightieth of its weight; acetic acid, ether and alcohol are its proper solvents.

Treatment. The white of eggs diluted with about two parts of water, should be quickly swallowed in considerable quantity as they are speedily coagulated, and blunt and diminish the causticity and acrimony of the creosote on the internal membrane of the stomach. When this

is effected, the coagulum formed should be expelled by an emetic of *sulphate of zinc* in doses of from a scruple to half a dram in a glass of water, and the throat tickled with a feather. The consistence of the coagulum will render the stomach pump useless.

If symptoms of inflammation appear, they are to be treated as ordered in other cases of poisoning—by bleeding and mild diluents.

When applied to a carious tooth, one drop is generally introduced into the hollow of the tooth, or two or three drops on a bit of cotton stuffed into the cavity.

When administered internally, it has been in doses of two drops diluted with water, and the dose gradually increased to twelve or fourteen. We, however, caution our readers against its use, unless under the direction of a skillful practitioner, and this caution is the more necessary, when the advertisement appears in many shop windows, 'the toothache cured without drawing.' It will certainly in many cases give temporary relief, but care should be taken in its application.

CRESSES. 1. Garden Cress, the *Lapidium Sairum*. 2. American Cress, the *Tetradynamia Silignosa*. 3. Winter Cress, or *Erysimum Barbaria*. 4. Water Cress, or *Sisymbrium Nasturtium*.

We have placed these under one general head, as they agree in their medical and dietetic effects, and as they are generally employed under the same form, viz. as salads, and for which purpose they are well adapted.

The first is a well known plant, which it is unnecessary to describe, as it is to be found in every spot in the united kingdom that deserves to be called a kitchen or even a cottage garden. There are three varieties, the common plain leafed, the curled leafed, and the broad leafed. It may be proper to state, that in many parts of Ireland, the garden cress is known by the name of tongue-grass, from the biting sensation it imparts to that organ. The plain leafed is principally cultivated as a salad, the curled as a salad, and preferable as a garnish, and the broad leafed also for salading, but grown chiefly for rearing young turkeys, for which latter purpose it should be choped fine and mixed with balls of oat leaven, and not boiled, as is usually the case.

All these varieties are raised from seed, which is easily preserved by leaving a few rows of that which is early sown. There is one purpose for which the seed might be employed by families, and that is as a substitute, or rather a companion, or partner, of table mustard. Dried and ground with mustard in equal proportions, it forms a mild and useful condiment.

Why the second was called the American cress, we are at a loss to divine, as it is a native of Britain, and found very abundantly in watery moist lands. It is also sometimes called French cress. It is easily propagated by seed, and is a good winter and early spring salad, resembling in flavour the winter cress, but rather more bitter, but by no means unpleasantly so.

The winter cress is a native of the united kingdom, and grows plentifully on moist banks and by ditches. It is perennial, with a long thickish root, with a few fibres, while the preceding, which is biennial, has sometimes been mistaken for it. The bottom leaves are lyre shaped, and the upper obviate, and indented. The flower stems, of which there are several, rise about a foot or eighteen inches, irregularly set with leaves. The stems are terminated by loose spikes of small yellow flowers, and the succeeding seed pods are long and slender. There is a beautiful variety of this plant in gardens, with a double flower, which is generally called the yellow rocket.

The whole plant is bitter, and somewhat aromatic, and having rather an unpleasant flavour, it is not so much in repute as formerly, although it is a powerful antiscorbutic, and in this respect will yield to none of the other cresses.

Water cress, or as it is usually spoken in the plural, cresses, is so common in our rivulets and water ditches, is so well known, and so much in use, many families having it on their tables for several months of the year, that no description is necessary. Indeed, it is a luxury which every family may procure on easy terms, if they please. So popular is this wild water plant in our British metropolis, that Dr Neil, in his Horticultural Tour, informs us that Mr Bradbury, at West Hyde, grows five acres, and sends the cress in hampers to London every day, each hamper containing eight dozen of bunches, and in consequence of this, and other supplies from artificial sources, the wholesale price of the article is reduced one half. Water cresses are also cultivated in the neighbourhood of Paris; and we see no reason why not in the neighbourhood of Edinburgh, Glasgow, Liverpool, Manchester, and other great cities, where the wild plant cannot be had in sufficient quantity.

Water cresses were long and justly considered as a sovereign remedy for scurvy, although not for every disease that goes under that name. In common with the other species of cress we have enumerated, it forms an excellent salad; and when eaten with dry food, such as cold ham, cheese, bread and butter, and many other such articles of diet, it proves highly beneficial, and by cultivation may be had in season at every time of the year. It could be cultivated in many quarters, so as to place it within the reach of every mechanic, labourer and their families; and if its use, and the use of the salads and vegetables we have so warmly recommended for more general adoption, were extensively introduced into our commercial and

manufacturing cities and towns, we should not so frequently be assailed with the unpleasant appearances of cutaneous eruptions as we now are.

CROTON OIL is the produce of the fruit or seeds of an East Indian plant, the *Tiglium Croton*. This oil is of a pale brownish yellow colour, and almost destitute of odour, with an extremely permanent hot biting taste. Very small doses produce alvine evacuations more or less abundant; but in large doses it irritates the mucous membrane of the intestines, and acts as a powerful drastic purgative. In obstinate cases of constipation, when other drastic purgatives have proved ineffectual, it is used with great advantage. When there exists an obstacle to the employment of an ordinary purgative, as is sometimes the case in tetanus or locked jaw, madness or apoplexy, and other diseases, and when it is necessary to obtain a speedy evacuation of the bowels, croton oil is not only the most effectual, but likewise the most convenient medicine we can employ, as from one to two or three drops on the tongue will often operate in a very short time. Or from one to six drops, as an enema, conjoined with one ounce of castor oil, half an ounce of oil of turpentine, and two ounces of warm water, will, if retained for ten or fifteen minutes, seldom fail in procuring a free discharge from the bowels in the most obstinate cases. These cases will be found in detail with the doses to be employed under their respective heads. It is administered in the form of pill, with crumbs of bread, or dropt on the tongue; one drop, or even half a drop, will prove a dose in some cases. Or it may be formed into an *emulsion* as follows:

Croton Oil, four drops.
Refined Sugar, two drams.
Mucilage of Gum Arabic, two ounces.

Drop the oil on the sugar, and reduce to a powder in a stone mortar, gradually adding the mucilage till a mixture is formed. Of this emulsion, two tea spoonfuls may be taken every two hours, until it operate. In obstinate cases, one fourth every two hours.

It is likewise frequently given in conjunction with colocynth pills, and it is used externally as a purgative in frictions on the region of the navel, in the quantity of from four to six drops, which often succeeds when its internal administration is difficult to effect, and although it may not always in this way act as a purgative, it appears to act as a revulsive and counter-irritant. The seeds are as active as the oil, and purge violently, in doses of a grain.

This truly valuable medicine is not, however, to be trifled with, and caution is required in its use. Tremor and delirium succeed the violent operation both of the seeds and oil, although under proper regulations, it may even be given to children in the form of an emulsion, especially in the form of enema.

CROUP. This disease has likewise been, and we think justly, denominated Laryngitis, *Trachitis*, or inflammation of the trachea, or wind-pipe, and larynx; but the disease frequently extends to the neighbouring parts, and even over the whole surface of the lungs. "It is one of those diseases," says Dr Bostock, "which with some unaccountable combination of circumstances, seems first to have made its appearance in modern times. It is not mentioned by medical writers until about the middle of the last century; and it is very difficult to conceive that it could have previously existed without being noticed as a distinct affection." It is a disease principally occurring in childhood; but it also occurs, particularly under the form of laryngitis or inflammation of the larynx, in adults during variable weather, particularly damp, cold, and foggy seasons. This disease has been deemed contagious, but we think without sufficient evidence. It is endemic in certain situations, probably from their being more exposed to cold and moisture, and it is observed to prevail in some families more than others. A child that has once suffered a severe attack of croup, is liable to returns of it from slight causes; but these second attacks are seldom or never so severe as the original one.

The symptoms by which croup is characterised are, in the commencement, something like those attendant on a common cold, with a harsh cough, &c., suffused eyes, and the young sufferer is drowsy, inactive, and fretful. These symptoms continue for two and sometimes three days. On the third or fourth day, the breathing becomes much oppressed, and as the disease progresses, the breathing becomes still more oppressed, the fever increases, the cough becomes violent and shrill, and indeed, during common inspiration and expiration, the stridulous noise or croup that is produced, is quite peculiar, and tells the experienced who have heard it before, the true character of the disease. This croaking or croupy noise is very difficult to describe, but it evidently depends on the contraction of the glottis and wind-pipe, in consequence of the thickened state of its internal membrane, and the quantity of viscid matter with which it is lined. Indeed, the nearest description we can give of the croupy noise, is that of the imperfect crowing of a young cock. In the more advanced stage, the distress of the little sufferer seems mainly referable to the wheezing; afterwards, however, the viscid matter is secreted in such quantity as almost to completely block up the trachea, and every effort to expectorate threatens suffocation. The disease often terminates fatally in thirty hours, and in some cases earlier, but it most frequently lasts forty-eight hours, although we have known it run on to the fourth, fifth, or sixth day.

We have already hinted at the causes, one of which appears to be a predisposition, consisting in a plethoric habit with robust stamina. The irritation from dentition seems a fruitful source of the disease, while a disordered state of the first passages may likewise prove as well an exciting as a predisposing cause of croup. Some peculiarity in the atmosphere at times tends to bring it on, as it occasionally shows itself both epidemic and endemic. The application of cold appears to have a share in predisposing to its attacks, as it is more general in the spring and autumn, when the weather is cold and stormy, than at the other seasons of the year.

The disease is, as already stated, very speedy in its progress, and almost always proves fatal, if left to the efforts of the constitution; indeed, we think it may be doubted whether a spontaneous cure was ever effected when the acute disease was fully formed, and no means adopted for its removal. The only disease for which it is likely to be mistaken, is spasmodic asthma; a little attention to the following diagnostic characteristics will prevent this. The peculiar noise in breathing, coughing and speaking, is the great characteristic feature of croup. The croupy noise is likewise without intermission, which is not the case with the wheezing in asthma; and the accompanying irritation is more decidedly febrile, with hard pulse and high coloured urine.

The favourable appearances are, the expectoration shortly becoming free, and affording the patient relief, while at the same time the febrile symptoms become more moderate.

The symptoms are unfavourable when no expectoration takes place, and the voice increases in acuteness, without the sympathetic fever giving way.

The treatment of this alarming disease, which, like the acute diseases of warm climates, speedily terminates in either a favourable or unfavourable issue, must be active, effective, and decided. What is called the antiphlogistic plan must be adopted. If the disease is discovered in its early stage, an emetic should be administered without delay; and for this purpose, we prefer the sulphate of zinc to every other. It operates speedily and effectually, and keeps up an expectoration without nausea; ten or fifteen grains may be concealed in a little currant jelly or honey, or if the patient will take it dissolved in half a wineglass of cold water, it will answer better; the dose will suit a patient from four to six, or from eight to ten grains, for one from two to four. If the sulphate of zinc is given in jelly or any thick substance, it will be necessary to facilitate its operation by drinking warm water, avoiding milk or any astringent vegetable infusion, which would check its operation. As soon as the operation of the vomit is over, which it will be in a few minutes, half a dozen at least of leeches should be applied in the triangular space between the mastoid muscles marked in the plate of the muscles (which see.) While the leeches are employed, let the following be given:

Calomel, twelve grains.
Precipitated sulphur of antimony, sometimes called golden sulphur of antimony, nine grains.
Refined sugar, half a dram.

Rub these ingredients intimately together in a stone mortar, and divide in three doses, one to be given every two hours. A mustard blister should then be applied over the upper part of the chest for ten minutes at a time, and the child placed in a warm bath.

If the child is of a full plethoric habit, the leech bites may be encouraged to bleed as long as possible, not, however, by the application of wet cloths, but by means of poultices or dry warm cotton or linen rags, shifted when they become moist with the blood.

If there is any tendency to spasm of the larynx, half a dram of tincture of assafœtida, and from ten to fifteen or twenty drops of laudanum, and one ounce of beef-tea or linseed-tea, may be administered as an enema. If the patient is under four years, the laudanum may be omitted, and the assafœtida used alone with the beef-tea.

Blisters are rather uncertain in their operation, and often produce very unpleasant consequences, especially in boys. Yet in some very bad cases, we may apply a blister about the size of a playing card to the upper part of the breast, as near (but not upon) the neck as possible, first brushing over the part with tincture of cantharides, and covering the blister with a bit very thin mull muslin. If the plaster is good, it will act as speedily and as effectually as placing the blister in direct contact, and can be removed without any of the plaster remaining, which is often a source of very great uneasiness to the patient, especially to children. In cases of girls, they do not suffer so severely from stranguary as boys, and therefore there is not the same inconvenience to be met in their application, but sinapisms, or the acetous solution of cantharides, are always preferable.

The means we have ordered above will all be expended in less than twelve hours, but if no relief is obtained, one of the following powders is then to be given every two hours:—

Calomel, precipitated sulphur of antimony, of each 24 grains.
Powder of digitalis, one grain.
Refined sugar, one dram.
Mix these intimately in a mortar, and divide into 12 powders.

The warm bath may now be repeated, but never in cases of plethoric patients, or indeed of any other, till the leeches and other means have first been employed. When the warm bath is resorted to, a vessel should be used in which the patient can sit or stand upright—the water reaching to the chin. The little sufferer

should be completely enveloped in a blanket wrapt round the feet and body, leaving only the head out, and in this state placed in the bath. This prevents the disagreeable shivering, as the water reaches the skin more gradually, and the patient feels no inconvenience. From ten to twenty minutes, according to circumstances, will be sufficient for the immersion, and when taken out, the skin should be diligently and carefully dried.

Experience warrants us in saying, these are the best means yet known that we can employ in the treatment of croup. In extreme cases, the operation of opening the trachea has been resorted to, but this can only be done by an accomplished surgeon.

In conclusion, let it be borne in mind, that where an experienced practitioner can be procured, this disease should never be treated by an unprofessional person, as it always assumes a serious and apparently fatal character, which never fails becoming really so, unless active means are employed. See *Measles*, *Hooping Cough*, and *Blisters*.

CUBEBS; sometimes named Java or Guinea Pepper, is a dry, round berry, like pepper, sometimes a little larger, furnished with a long slender stalk. The bark is of a dark ash colour, sometimes wrinkled, but frequently smooth. It contains under this tender bark or shell a roundish seed, which is externally of a blackish, internally of a whitish colour. Cubebs have an aromatic odour, taste at first cooling, but becomes hot and pungent, but falls short of the acrimony of pepper, and the virtue resides in an essential oil. There are two kinds brought from the East Indies or Java; one is gathered before the other, as soon as it is fully ripe; those of the former kind are bright, wrinkled, and have their kernel much shrunk; the others are smooth, full, and heavy. The latter should, therefore, be preferred. They yield a considerable quantity of essential oil, but the powder is the best form for administering this medicine, which has been lately highly recommended in gonorrhea, and is by some deemed a specific in that disease. Where a great degree of inflammation is present, it would be an improper remedy; but in other cases, we have often administered the powder in doses of half a dram up to a whole dram, three times a day, in a wineglass of cold water, or concealed in jelly, honey, or treacle, with manifest advantage, especially in subjects approaching middle age.

CUCUMBER, or *Cucumus Sativus*. This well known annual plant is gradually rising into more general esteem in places where it was comparatively little known. It was introduced into Britain about the year 1753, and in England it is now cultivated generally and extensively in forcing frames, and in the open air especially in the vicinity of cities and large manufacturing towns. M'Phail observes, that not only gentlemen, but almost every tradesman who has a garden and dung, has their cucumber frames. We wish we could add the same is the case in Ireland and Scotland; for in the former cucumbers could be as easily raised as potatoes. In the counties bordering on London, whole fields are covered with cucumbers, without the aid of dung or glass, and sold in Covent Garden for pickling. Of this, like most other garden plants, there are several varieties. The early long prickly is considered the best cucumber for a summer crop, and the early short prickly is one of the hardiest and earliest sorts.

Such is the consumption of this plant in pickles, that the village of Sandy, in Bedfordshire, has been known to furnish 10,000 bushels of pickling cucumbers in one week.

The green fruit of this plant is the part used, and forms an excellent aperient and cooling summer salad, eaten with pepper and vinegar, and slice of cold beef or bacon ham. It is an agreeable lunch, and it is a delicacy which any one with a few perches of garden ground may easily procure. If eaten in too great quantity, it creates flatulence and indigestion; but this is the fault of the intemperate, not of the cucumber. It is also salted when half grown, and preserved in vinegar when young and small.

The Poles and Germans preserve both the half and full-grown cucumber from one season to another, by packing them in barrels, and immersing them in deep wells. We presume burying the casks in the earth would have the same effect, by excluding the air, and preserving an equitable temperature.

CUMMIN SEED. This seed is ovate and striated, and possesses a peculiar heavy odour, and a warm, bitterish, disagreeable taste; water extracts the odour, and spirit takes up both odour and taste. They have been deemed antispasmodic, carminative, and stomachic, and externally stimulating. They are, however, seldom used internally, and only externally in the form of plaster by the London College, and even that form might be omitted. They were anciently used as a wash, in the form of infusion, and smoked for the purpose of procuring a pale, delicate visage. Young ladies who prefer such a countenance to the rosy hue of health, may take the hint, and consult Dioscorides, Pliny, and Horace.

CUPPING. This term is applied to an operation in which glasses exhausted of air are applied to the surface of the body, so that the pressure of the surrounding atmosphere forces the blood towards the part. For this purpose, the spirit lamp held under the glass is usually employed, the glass being applied the moment the air is sufficiently exhausted. Cupping is usually performed for the purpose of abstracting blood; and for that purpose, an instrument

called a scarificator, consisting of six, twelve, or eighteen lancets, contained in a kind of box, and moved simultaneously by a spring or trigger, is what is generally used. The glasses are applied, first, to cause a determination of blood towards the part; and on being removed, the scarificator is placed on the part, and the trigger being touched, the lancets are projected, making the requisite number of wounds. A cupping-glass, prepared as above described, is then applied over the wounds, when the blood flows rapidly into the vacuum so made. Dry cupping, as it is called, consists merely in repeated application of the glasses to the part, till a degree of redness and pain is produced; it acts as a counter-irritant, by causing a determination of blood towards the surface. Cupping is useful in apoplexy, epilepsy, and in all cases where local blood-letting is requisite, and is preferable to leeches, as the patient is not wearied out or exposed to cold, as during their application. But it is an operation requiring frequent practice to give the necessary dexterity, and therefore can never be well performed by the domestic practitioner.

CURRANTS, Black, Red, and White. Currant, or the *Ribes Nigrum*, or the Black Currant. There are few gardens in which one or more plants of the humble shrub that produces the black currant has not a place. The berries are larger than the red currant, but owing to fashion or their peculiar flavour, they are seldom introduced to the dessert. They are, however, very extensively employed in the form of jelly, jam, in puddings and tarts, and the juice fermented yields an excellent wine. The berries are laxative, and diuretic, and the recent juice possesses this latter quality in no ordinary degree. The leaves are extremely fragrant, and have been recommended for their medicinal qualities. Gathered when the flowers are beginning to open, and carefully dried, the infusion either alone or with equal parts of black tea, furnishes a pleasant and effectual diuretic in that tardy state of the urinary organs so common to the aged. The infusion has the taste and flavour of a mixture of black and green tea. The jelly and jam are convenient vehicles for administering powders and pills, and likewise an agreeable sweetmeat, and a common friend at the tea table in Scotland, where the custom of jellies, jams, marmalades, and honey, being eaten with bread and butter, very generally prevails, especially among the middling classes of society. The Russians infuse the berries in brandy, and the Irish and Scotch steep them in whisky. The wine is a pleasant domestic liquor, and a cheap substitute for foreign wine. There are no varieties of the black currant.

Red Currant, or *Ribes rubrum*. There are several varieties of the red currant, and the white currant is one of them; it is more honoured than the black currant, in being admitted to the dessert, and is used for the other purposes for which we have stated the black currant to be employed. The jelly or jam, both of this and the black, are used for acidulating drinks in febrile diseases; but the leaves have not the medicinal qualities of the other kind. Considered medicinally, red currants are esteemed to be moderately antiseptic, aperient, and refrigerant; and preserved in the form of jam, may be employed as an antiscorbutic at sea. Withering recommends it as an agreeable acid to punch, a liquor, however, which should be much seldomer used than it is in some quarters, especially after dinner. Every working man who has a family and a garden, should raise a few currant bushes of both kinds, as many as will yield a few pounds of jelly and jam, most convenient articles in the time of sickness. Louden enumerates ten varieties of the red and white currant.

CUT. A simple incised wound. See *Wounds*.

CUTANEOUS DISEASES. See *Skin*.

CYNANCHE. The medical term for sore throat.

D

DAMSON. The damson is the fruit of the *Prunus damascena*, a plant which is pretty extensively reared in several districts of England, especially in the metropolitan and neighbouring counties. Damsons are much used for pies, tarts, &c., in the places where they abound, but their cultivation has never been much attended to in Scotland or Ireland; and this is the more to be regretted, as the cultivation is easy, and the plant forms an excellent hedge row tree; except, however, in fine seasons the plant seldom ripens in Scotland, but this is not the case in Ireland. Baked damsons, when perfectly ripe (and not spoiled by keeping or carriage, which they are very apt to be), are an excellent article of diet. It is not safe, however, to indulge in many of them, even when ripe, in a raw state, and when unripe or spoiled the danger is greater, as they are very apt to produce colic, diarrhæa, and even dysentery, particularly in children. A few doses of the compound powder of columba is a very good

remedy in such cases, for young or old; and in cases of colic an adult may take one ounce of tincture of rhubarb, one or two drams of tincture of ginger, and half an ounce of simple syrup, made into a draught, which will in ordinary cases remove the pain. Or half an ounce of the compound tincture of senna, and the same quantity of castor oil, with thirty drops of laudanum, will be found equally efficacious. A few ripe damsons act as an aperient, gently opening the bowels, and jam or jelly of the pulp have the same effect. The jam is a cheap family conserve for acidulating barley water, and other drinks, and as a vehicle to cover the taste of disagreeable medicines. A spirit is distilled from the damson in Austria.

DAMSONS, Bitter, or MOUNTAIN or BITTER DAMSON. The tree, of which the bark and wood are the parts used in medicine, abounds in Guinea and Jamaica, and the bark of the root is sold under the name of *Simarouba* bark. It is little known in general home practice, but is given in substance, in doses of half a dram of the powder, twice a day, or even to the extent of a dram. It is, however, best given in the form of decoction, and two or three drams of the bruised bark boiled in two pints of water down to one half, and strained while hot, may be used in doses of a wine glassfull every three or four hours, in diarrhæa, or dysentery, and other lax states of the bowels.

DATE or DACTYLUS; the oblong fruit of the *Phœnix dactylifera*, or date palm; so called from the likeness of the fruit to a finger. The date is the principal article of diet of various tribes, both in Africa and Asia, and the British market is chiefly supplied from Egypt and Barbary, although Captain Scott says that the Egyptian dates are not to be compared with those of Western Africa. The date tree and its fruit supply not only food, but many other comforts and conveniences of life to the inhabitants of those regions where it abounds. Dates, before they are ripe, are rather rough and astringent, but when perfectly matured they are much of the nature of the fig. They are highly nutritious, and have a sweet, bland, mucilaginous taste. Some esteem the Senegal dates as preferable to the Egyptian, having a more sugary and agreeable flavour. In fine, sound ripe dates are well calculated for an article of diet in the warm countries where they grow, and less liable to produce diarrhæa, dysentery, or any of those disorders so frequently induced by an over indulgence in the use of fruit. Scott Wering informs us that in Persia the date tree is grown in plantations, in the proportion of fifty females to two males, and that the natives begin to impregnate the females with the blossoms of the male in March and April; alleging that their proximity is not sufficient to insure the produce of fruit, and that this practice has been carried on among them from the earliest ages; a proof that they are not indebted to Linnæus or any modern naturalist for their knowledge of the sexual system of plants. Dates are dressed in so many ways, that a female is not thought to be qualified for a wife who cannot present her husband with a dish of dates, dressed differently every day for a month or more.

DAY BLINDNESS, or NYCTALOPIA, or the *Imbecillitas Oculorum* of Celsus. In this affection, which has been long known to the reading part of the profession, but which is extremely rare in this country, there is a defect in vision by which the patient sees little or nothing in the day, but in the evening and night sees tolerably well. Rare, however, as the disease is, there is a *Nyctalopia endemica*, or a whole people have been nyctalops, as the Ethiopians, Africans, Americans, and Asiatics. A great flow of tears are excreted all the day from their eyes, and at night they see objects, and this affection is epidemic in particular districts. In individuals labouring under strumous ophthalmia, there is such a degree of intolerance of light, that the patients may be said to be blind during the day. This is by no means a rare case, and yet those individuals, when twilight comes on, are able to open their eyes, and can see; and that is certainly a species of nyctalopia. There are, also, states of the eye in which the patient sees pretty well in a moderate light, although he cannot see in a strong one. A central opacity of the cornea, or of the crystalline lens, constitutes a case of this kind. In a strong light the pupil is contracted, and no light gains admission; but in a weak light, where the pupil becomes dilated, light passes in through the transparent circumference of the cornea or of the lens. There are two certain states of imperfect vision which arise from alterations in the optical parts of the eye. The transparent media of the eye are to be considered merely in the light of certain optical instruments, which are calculated so to act upon the rays of light as to bring them to a focus on the retina. We can imitate them by an artificial instrument. "All the parts of the eye," says Mr Lawrence, "are quite mechanical; they act just according to the laws which affect media of a certain density out of the body." In elderly persons, the refractive powers of the eye become gradually diminished, so that the rays of light are not brought to a proper focus on the retina; the refractive powers are lessened, so that they do not converge the rays with sufficient power for the purpose of vision; hence such a person is unable to see objects situated near the eye; he cannot read at an ordinary distance, nor see to mend a pen, nor see minute objects placed near the organ of vision; the refractive powers of the eye not being adequate

to bring the divergent rays which proceed from near objects to a focus, yet such a person can see distinctly objects at a great distance. He cannot, perhaps, see what is the hour by a watch held in his hand, but he will tell what o'clock it is by looking at a remote steeple dial. This is what is called far-sightedness, or presbyopia, that is, a state of change of vision consequent on old age. It occurs about the middle period of life, but more generally after or as old age comes on.

The remedy consists in the employment of convex glasses, and the use of spectacles. The individual must select glasses of such a power, as will enable him to read or see objects at the ordinary distance with facility. He merely wants to use this optical aid for near objects; remote objects he is able to see perfectly well without glasses. But as this is a change of the eye which is progressive, he finds, a certain time after he has selected the spectacles, that they do not answer the purpose, and he is obliged to use more powerful glasses. The opposite state, Near-sightedness, will be found under that head.

DANDELION, or the *Leontadon Taraxicum* of Linnæus. Every part of this plant has been used or recommended to be used, both as an article of diet, and in medicine. The blanched leaves of the plant are used as a salad, and where prejudice does not interfere, it is certainly far preferable to many other plants used for the same purpose. The roots, too, dried and roasted, have been used as a substitute for coffee, and we have no hesitation in asserting that they ought to be preferred to much of the ground coffee that is sold in small towns; for our own part we had rather take equal parts of coffee and roasted and ground dandelion root, than of coffee alone. Indeed, in several parts of the continent of Europe, the roots are sold to be roasted and used as coffee. The expressed juice of the leaves, roots, and plant, has been used in dropsies and abdominal complaints, especially in affections of the liver. In modern practice, however, the use of dandelion is confined to the two preparations of the decoction and extract. The former, viz. the decoction, is made by boiling four ounces of the fresh herb and root in two pints of water down to one, and strain while hot. This, in conjunction with other diuretics, is used in doses of an ounce, or even a wine glassfull three or four times a-day. In the article *Dropsy* will be found a prescription for the Compound Decoction, which is a valuable diuretic. The extract is made by evaporating the decoction of the root and plant, till it is of the consistence to form pills. It is, however, a delusion to suppose that a few, even ten grains, of the extract three times a day will do any good as a diuretic; for, to effect any good purpose with this, it must be used in doses of a scruple or half a dram three or four times a-day, drinking freely barley water, acidulated with cream of tartar. When carried to this extent, the diuretic powers of the medicine are almost incredible. In fact, it is perhaps second to no other vegetable extract, nay, not even to broom, for the cure of those anasarcous or watery swellings which so very frequently follow scarlet and other fevers, and which, if neglected, will assuredly become a confirmed dropsy.

It would occupy a volume to detail half that has been said respecting the virtues of dandelion; but we are not those visionaries to suppose, that in any one plant so many virtues are concentrated; although at the same time it is perhaps too much neglected, not only as a medicine, but as a salad and a substitute for coffee.

The roots may be dug up in the latter end of harvest, and may be preserved fresh in sand for this or for medical use, and for making extract, early in the spring. Those who choose to use the herb as a salad, may blanch it, by drawing up the earth on the lower part of the plant, as is done in the case of celery and other culinary vegetables; and by this treatment the plant acquires the taste of endive. In cutaneous diseases, we consider a decoction of two ounces of the root sliced, and the same quantity of the roots of burdock, the inner bark of elm, and the tops of juniper, equal, if not superior, to that of sarsaparilla. These ingredients are to be infused for a night in a quart of boiling water, and afterwards boiled for half an hour on a slow clear fire; ten minutes before it is removed from the fire, two or three ounces of extract of liquorice (known also by the name of Spanish juice liquorice ball, or in Scotland, black sugar), cut in thin slices, may be added, and the decoction strained while hot. Three gills, or even a pint of this decoction, may be drank at intervals in the course of the day, but it is better to begin with three wine glassfulls, and gradually increase the dose to three or four gills daily. This truly British vegetable decoction is equal to the sarsaparilla, and far superior to most of advertised and industriously puffed concentrated liquid extracts of sarsaparilla, &c. &c., which are sold at so high a price.

DEADLY NIGHT SHADE. See *Belladonna*.

DEAFNESS. See *Ear*.

DEATH. The individual existence of all organized bodies is temporary; none escapes the hard necessity of ceasing to be, or of perishing; man suffers the same fate. The history of the functions shows us, that from the first periods of old age, and sometimes sooner, the organs become deteriorated; that many of them entirely lose their action; others are absorbed, and disappear; that finally, at the age of decrepitude, life is reduced to some remains of the

vital, and a few deteriorated nutritive functions. In this state, the least external cause, the smallest blow, the slightest fall, is sufficient to arrest some one of the vital functions, and death immediately arrives, as the last term of destruction of the functions and organs. But few men arrive at this end, brought on by the progress of age alone. Of a million of individuals, but very few attain to it; the others die at all periods of life, by accidents or diseases; and this great destruction of individuals by causes apparently accidental, seems to enter into the views of nature as certainly as the precautions she has taken to ensure the reproduction of the species. —*Majendie.*

The symptoms of approaching dissolution are, weak and almost imperceptible pulse, coldness of the surface and extremities, slow and irregular respiration, the eyes dim and glassy, lips are dry, and there is loss of expression, and sinking of the features, particularly at the temples, constituting the 'facies hippocratica;' the person becomes comatose, the respiration acquires a peculiar rattle or sound, as if there was mucus in the wind-pipe, the pulse at the wrist ceases, and the scene is soon closed by death. But friends should be cautious, in the absence of a medical person, of proceeding to make the usual arrangements of the body, throwing open the windows, &c. as cases are recorded of persons being supposed dead, who really were not so; and as many of the usual signs are apt to be deceptive, unless carefully investigated, and many of the arrangements common on such occasions would prevent any chance of recovery, supposing the patient not really dead, we again repeat, there is necessity for due caution.

DECOCTION. Medicines prepared by simply boiling in water, or in any watery fluid, or indeed if boiled in any fluid, are called Decoctions. Those, however, which are used in domestic medicine, are all prepared by boiling the ingredients in water, and sometimes straining the first decoction, and afterwards boiling in the strained liquor other ingredients, to increase the virtue or efficacy of the compound. When a number of ingredients are boiled together, it is generally called a compound decoction. This class of preparations should always be prepared on a clear fire, free of smoke. Although by boiling, the solvent power of the water is increased, yet the notion that long coction or boiling renders the preparation more active, is erroneous, and, in most cases, opposed to experiment and fact. The volatile and extractive principles of vegetables cannot, with strict propriety, be subjected to decoction, as the first, viz. the volatile, are dissipated by the boiling, and the second attracts oxygen with so much avidity at a temperature of about 212°, that it is converted into insipid, inert matter, which is no longer soluble, and is precipitated or thrown down in the decoction. This is the case with Peruvian bark, senna, tea, and some other vegetable matters, which are still, nevertheless, ordered to be prepared by decoction. In many works on domestic medicine and in family herbals and books of receipts, we often find directions for boiling certain articles till the water in which they are boiled is reduced one-half. In five cases out of every six in which this direction is given, the properties will be completely destroyed, and rendered inert. When articles containing volatile oil, are boiled even for a short time, they should be prepared in closely covered vessels. Decoctions in warm weather, or in a warm apartment, will not keep fresh longer than twenty-four or thirty hours, unless a considerable quantity of spirit be added. By keeping them in a cool place, or plunging the bottles in which they are contained in a cold mixture, they will keep good a few days.

DEFLUXION. This is a very favourite term with domestic practitioners, especially when speaking of coughs and asthmatical affections, which they designate defluxions on the lungs, and perhaps in many cases the term is not ill applied. Defluxion merely signifies to run off, and is applied to a falling down of humours from a superior to an inferior part; and thus, when an affection extends from the wind-pipe to the lungs, and the breathing is affected, it is said to be defluxion on the lungs. Some writers, however, mean no more by the term than inflammation, but it is more correctly an effect of that disease, than the disease itself.

DEGLUTITION. The act of swallowing. See *Swallowing* and *Digestion.*

DELETERIOUS. Noxious or poisonous.

DELIQUESCENT. This term is applied to those salts which, by attracting water from the atmosphere, deliquesce or become liquid

DELIRIUM, RAVING, OR INCOHERENCY. This state generally supervenes on other diseases, or after accidents, serious operations, &c.; and is the result of either organic or functional disease of the brain, from their effects on the nervous system. As it is rather a symptom than a disease, and requires different treatment, according to the exciting cause, viz., the nature of the disease, or injury on which it supervenes, it will be found treated of under the various diseases, such as fever, &c. in which it occurs.

DELIRIUM TREMENS. Delirium, accompanied by trembling, or the brain fever of drunkards, is characterized by watchfulness, dejected state of mind, total want of sleep, apprehension of some evil, raving, at first towards evening, which soon becomes continued. The patient, however, is generally able to distinguish his friends. There is quivering, tremulous motion of the hands, on attempting to make any exertion. The pulse is sometimes small and rapid; at other times full but soft. There is great wildness of expres-

sion and fear; the patient is constantly troubled with fearful images, sometimes convulsions supervene, and prove fatal.

This disease also frequently supervenes on accidents, even when slight, in persons of intemperate habits, as after fractures, falls, wounds of the scalp; and, as we have already noticed, when speaking of injuries of the brain, is calculated to mislead the surgeon, unless he is acquainted with the previous habits of the patient. Sometimes the disease is accompanied by symptoms of congestion and inflammatory action, requiring depletion; but this can be but rarely requisite in this disease, and should be had recourse to with great caution, as it may produce even fatal effects. The best treatment is the application of cold to the head, or if there is much appearance of excited action, the application of leeches to the temples. The bowels should be well cleared out, by means of calomel and colocynth, and by administering a turpentine or assafœtida injection. Opium, combined with camphor, in doses of from one grain of the former to two of the latter, may be given every six hours, till three such doses have been given; and a table spoonful camphor mixture may be given every hour; or what is preferable, small quantities of the particular stimulus to which the patient has been addicted, may be exhibited; and this is generally found the most successful treatment, combined with opiates at night, to procure sleep, attention to keep the bowels freely open, and the application of cold to the head, and blisters to the nape of the neck.

These means have been found to succeed even in cases of erysipelations, inflammation of the scalp, after wounds in persons of intemperate habits, which had previously resisted, and indeed become worse,under active anti-phlogistic treatment; and this shows the necessity for forming an accurate distinction between this disease and delirium resulting from inflammation of the brain, where the very opposite treatment is required; and in making this distinction, the practitioner must be much influenced by his knowledge of the previous habits of the patient.

DEMULCENTS. Those substances which envelope, or, in other words, cover, surround, and guard acrid matter, and cover the surfaces that are too sensible to external impressions, and soften hard or dry parts, have been denominated demulcents. The simplest and most familiar illustration of demulcents that we can adduce, is in the case of what is called a dry, hard, tickling cough. The patient keeps a piece of barley or candy sugar, or Spanish juice, or, in other words, liquorice extract, gradually dissolving in the mouth, and swallowing the solution. In this way either of these act as a demulcent, affording an artificial lining to the tubes, and thus tends to prevent the frequency of coughing. Their operation is regarded, in the first instance, purely as mechanical, and that all the effect that they produce on the system at large, depends upon the power of relieving irritation, by removing or obviating the irritating cause. The operation of demulcents depending entirely upon their consistence, or their physical properties of cohesion, we must be directed in our choice of them entirely by the facility with which they can be applied to the different organs. For the internal part of the mouth, and to the fauces, we use mucilages and syrups, while to the skin we apply ointments or liniments of various kinds. Under the head of demulcents, we may include *emollients*, because although the operation of the two may not be precisely similar, yet they are generally so connected together, that one effect almost necessarily produces to a certain degree of the other. Emollients have been defined, those substances which possess a power of relaxing the living and animal fibre, without producing that effect from any mechanical action. The same remark may also apply to what has been styled diluents, which may all be referred to water, the only substance that can be properly considered as diluting, but which likewise possess both a dimulcent and emollient quality. By diluents is generally understood, those substances which increase the proportion of fluid in the blood; and it is therefore evident that this must be done by watery liquors. Water is indeed, properly speaking, the only diluent. Various additions are made to it to render it pleasant, and frequently to give it a slightly demulcent quality, as in the case of barley water and other vegetables, and even animal decoctions, infusions and mixtures. But these are not sufficiently important to require to be noticed or classed as medicines. Diluents, and indeed, emollients and demulcents, are merely secondary remedies, and are given, the first especially, in acute and inflammatory diseases, to lessen the stimulant quality of the blood, and to promote the action of diuretics in dropsy, and to favour the operation of sweating, while the two latter, viz. emollients and demulcents, are likewise given for the same purposes, and likewise in chronic affections, where, as it regards quantity, the same proportion of dilution, and even of covering, is not required. To save room, and avoid tautology and circumlocution, as likewise to render the subject more easily understood by the general reader, we have classed these three species of substances together, seeing that it is in many cases only the quantity and mode of application that converts a demulcent into an emollient, and a diluent into both. The diseases in which demulcents are most employed, are catarrh and cough, diarrhæa, dysentery, calculus, or stone in the urinary bladder, gonorrhæa, &c., and as they are medicines of no great power, they may be taken in as large quantities as the

stomach can bear. The pharmaceutical articles that may be included in this class, are gum arabic, tragacanth, in the forms of powder, mucilage and lozenges; liquorice in extract, decoction, and troches, marshmallows, linseed, Iceland moss, Carageen moss, arrow root, sago, tapioca, potatoe starch, in the form of decoctions or jelly; almond and olive oil, almond emulsion; spermaceti, sugar, honey, lard, bees' wax, &c. &c. Some of these, it must be observed, are used as external demulcents or emollients. To these we may add as one of the most powerful agents, the vapour or steam of water as applied to the surface of the body, or inhaled into the lungs, and warm water itself, either received into the stomach or employed in the form of the warm bath; indeed, water and its vapour used in either of these ways, may be regarded as possessing all the qualities of a demulcent and emollient and a diluent. The use of particular demulcents will be found in the account of those diseases, and their treatment, in which they are employed.

DENTIFRICE; a name given to such substances as are employed for cleaning the teeth, or rather such articles as effect this purpose by rubbing, seeing the term is derived from two Latin words, *dens*, a tooth, and *frico*, to rub. There is, perhaps, no class of medicines which the quack in the form of a barber perfumer, and we are sorry to add, not unfrequently of a regular educated surgeon dentist, has imposed more upon the public than in dentifrices for the cleaning and even bleaching of the teeth. If a tooth brush is at all allowable, the best powder that can be employed is plain charcoal of oak, or nut shells ground into fine powder, and fine precipitated chalk mixed with camphor; and when there is any sponginess of the gums, three parts of charcoal and one of powder of Peruvian bark, and the same of fine powdered myrrh; and the mouth should be well rinsed afterwards with cold water, with a little spirit of camphor or tincture of myrrh.

DENTITION. By this term is meant the breeding or cutting of the teeth, a period of life most important, and which should be well understood by parents, nurses, and all having the management of infancy and childhood. There are three periods in this remarkable process; the first taking place about the sixth or seventh month, often earlier, and producing teeth called the milk teeth. These fall out, and are succeeded by a second or permanent set about the seventh year. The third or last occurs between the ages of twenty or twenty-five, when the four last grinders appear, which are denominated the dentes sapientiæ or wisdom teeth. The important process of teething in childhood, and the disease and disorder frequently experienced at that period, will be found pretty fully described under the article *Teething*, which see.

DEPILATORY. This, like its neighbour the dentifrice, is a great favourite with puffing perfumers, who no doubt succeed in persuading many ladies, aye, and gentlemen too, that they would look handsomer and better were the superfluous hairs which occasionally infest the face, neck, arms, and every other part daily or occasionally open to public view, removed. A Depilatory is a substance which effects this purpose, and the term means any application that removes the hairs from any part of the body. The advertised depilatories are composed of caustic, lime, and other caustic substances, and we advise our fair friends to permit a few superfluous hairs to remain, rather than run the chance of producing a scar more painful and unseemly. See *Hair*.

DESQUAMATION. By this term is meant the cuticle 'peeling off,' as it is called, after fever and other diseases.

DETERGENTS. This term, like many other terms employed in medicine, should certainly have been applied to another kind of agents than that to which it is now applied, viz., to those articles of the Materia Medica which cleanse and remove such humours as adhere to, and obstruct the vessels; hence, we have detergent lotions to wash foul ulcers, and ointments having the same qualities to deterge or cleanse them. When, therefore, a detergent medicine is advised, it is generally almost always to some visible sore or ulcer, and composed of one or a mixture of some of the following articles: common or venice turpentine, honey, or ointments, into the composition of which it enters. The tinctures of benzoin, myrrh, and aloes, verdegris or its ointment, and other preparations of copper in watery solution, or otherwise.

DIABETES. This disease, happily not very common, but indeed more so than is generally imagined, is characterized by an inordinate flow of urine, which is generally altered in its chemical composition. Authors have noticed several species, but the two most deserving of attention are the sweet and insipid diabetes—the first being distinguished by the urine being of the odour, colour, and taste of honey, and the second being limpid, and not sweet.

Diabetes is indeed an affection of a very peculiar nature, and which, both with respect to its origin, its proximate cause, and its treatment, has given rise to much discussion. The most remarkable symptoms, as already stated, are a great increase in the quantity of urine, a voracious appetite, a stoppage of the cutaneous perspiration, thirst, emaciation, and great muscular debility. The urine is not only prodigiously increased in its quantity, but likewise has its composition completely changed. The substance named urea, which it contains in the healthy state, is entirely removed, or exists in

very small proportion, while in its stead we find a large quantity of a body possessing the physical and chemical properties of sugar. Whether diabetes differs essentially from vegetable sugar, is to be regarded more as a chemical question, than as what in any respect influences either our pathology or our practice. It has been a subject of controversy, whether there is proper diabetes insipidus, that is, a disease attended with an increased discharge of urine, voracious appetite, and the morbid state of the skin, but where the urine does not contain sugar.

The treatment of diabetes has of late occupied an unusual share of the attention of the medical profession, and Drs Rolle and Watt contributed, in no ordinary degree, to awaken the interest now taken in the subject. The remarkable change in the chemical condition of the urine, by which a compound, consisting of hydrogen and carbon, is substituted for one into which azote enters as a principal ingredient, led to the idea, that by excluding these elements as much as possible from the diet of the patient, the morbid state of the fluid might be prevented or corrected. Accordingly, it was found that by employing a complete animal diet, or the patient eating nothing but animal food, the sugar was no longer produced, and it was announced, that by strictly adhering to this regimen, the disease had been completely cured. Experience has not, however, confirmed these favourable reports, for although, while the hydrogen and carbon are no longer present in the digestive organs, the sugar can be no longer generated, yet the diseased action seems to remain without alteration, so that, upon the least deviation from the animal diet, the saccharine or sugary urine is reproduced. We believe, upon the whole, where the urine was in large quantity, and highly saccharine, where a ravenous appetite existed in any considerable degree, and where the perspiration by the skin was abolished, no satisfactory case of permanent cure has yet been recorded. The treatment which may perhaps afford the best chance of success, or which may possibly remove the complaint in its incipient state, is moderate bleeding at first, and that a diet should be employed, of which vegetable matter should form only a small proportion. At the same time we may administer vegetable tonics, and may endeavour to restore the natural action of the skin, by diaphoretics, the warm bath, and dry friction.

It were an interminable task to enumerate all the nostrums that have been recommended for the cure of diabetes. The most skilful should be consulted, for, from the rapid advancement of medical chemistry, we are not without hope that a remedy may yet be discovered for this obstinate and hitherto incurable disease. From our statements, hints may be gleaned for alleviating the symptoms, which is all we can venture to suggest.

DIACHYLON PLASTER; the common lead plaster, a most useful application when spread on linen, cotton, or soft leather, as a mechanical support. When united with a small portion of rosin, it forms the adhesive plaster, and indeed the basis of almost every plaster used in modern practice. It requires so much attention in the preparation, that it is seldom prepared but by trading chemists and druggists, and is so cheap that there is little temptation to adulteration, although it is far from being uniform in its character as usually sold in the shops. See *Adhesive Plaster*.

DIAGNOSIS. This is a term which occurs in the description of almost every disease. Diagnosis is the conclusion at which we arrive concerning the nature of a disease, from an attentive consideration of those symptoms which serve to characterize a disease, and distinguish it from one which, in most respects, nearly resembles it. Intimately connected with these is another set of symptoms, which have received the appellation of pathognomonic, which are those that are peculiar to a disease, and enable us to ascertain its existence, without reference to any other morbid affection. The correct investigation of these circumstances constitutes one of the most important parts of the duty of the physician, and forms the basis upon which all his future plans of treatment are to be founded. The domestic practitioner, therefore, or he who, in the absence of better advice, would venture to relieve his relation, neighbour, friend, or even stranger, in disease, ought to be particularly careful not to mistake one disease for another; but with great care and attention study those diagnostic symptoms which distinguish the disease from every other. We have been particularly careful to state the diagnosis of diseases as fully and clearly as possible, that no mistake might occur on this head. The most learned and skilful are sometimes mistaken; but until we have clearly determined what is the disease with which the patient is affected, our remedies must be applied at random, and our speculation concerning its cause or its nature must necessarily be vague and indistinct. Let the general reader recollect, that he is not to act on the opinion of another person who has no better information than himself, and who, without any good reason, pronounces the disease to be scarlet fever, when it is measles, or *vice versa*. Read the descriptions, and be guided by them.

DIARRHÆA. This term is used to express looseness of the bowels, or frequent loose stools, and is a symptom rather than a disease, for it depends upon some irritation of the stomach or bowels, which may arise from various causes—the most general being cold, indigestible articles of food, acid fruits or drinks, or acidity of the

stomach, arising from any cause, an over secretion of bile, or a vitiated state of that secretion, and not unfrequently from hardened fæces in the bowels, as in those who have suffered from constipation. It may also, and frequently does arise, from inflammation of the mucous membrane of the intestines. Diarrhæa consists in frequent watery motions from the bowels, which are generally fœtid, and containing portions of undigested food, hardened feculent matter, &c., preceded by rumbling in the bowels and sharp griping pains.

The treatment depends much upon the cause from which the diarrhæa arises. In cases where it depends on checked perspiration or cold, the best treatment is the exhibition of five or ten grains of Dover's powder, after the bowels have been acted on by some gentle laxative, as castor oil, warm mucilaginous drinks, and the warm bath. If there are symptoms of inflammation, bleeding, and the other remedies recommended in our article on the inflammation of the bowels, must be had recourse to. If it depends on indigestible food or acidity, a large dose of the carbonate of soda, dissolved in cinnamon or peppermint water, should be first given, followed in half an hour by a dose of castor oil; and when this last has operated, a dose of fifteen or twenty drops of laudanum in a table spoonful of chalk mixture, should be administered. If this does not check the purging, a dessert spoonful of the astringent catechu mixture (see *Domestic Pharmacopeia*), should be given after every loose motion; warm cloths, or bottles of warm water, should be applied to the belly; the bowels must be afterwards carefully regulated by means of gentle laxatives, and bitter tonics should be given for some days. In those cases where the diarrhæa proceeds from an over-secretion, or vitiated state of the bile, which state is generally accompanied with nausea, vomiting, bitter taste in the mouth, and scalding pain at the lower part of the bowels, an ipecacuan emetic may be given, and this should be followed by a dose of six grains of calomel, combined with eight or ten grains of rhubarb, and one or two grains of the extract of hyosciamus, and afterwards the following medicine may be given:—Phosphate of soda, one ounce; infusion of gentian, eight ounces. Dissolve the salt in the infusion, and give a wine glassful every hour, till the appearance of the stools becomes more natural, and the nausea and griping cease. Should the looseness still continue, the astringent mixture may then be used. The same plan of treatment is applicable to those cases following constipation, with the addition of using bland injections to get rid of the hardened fæces. The diet throughout should be light, as thin arrow root, or a little rice; milk, slightly heated, and one or two table spoonfuls of lime water added, and Caragheen or Iceland moss, also form useful articles of diet in such cases. The patient should wear a flannel bandage round the abdomen for some time afterwards. Diarrhæa also occurs during the last stages of consumption, and other cases of hectic, but in such cases, little can be done to alleviate it, as checking it only aggravates the other symptoms. See *Bowels, Inflammation of, Cholera, Dysentery, &c.*

DIAPHORESIS. When a physician says, that he wishes or intends to promote a *diaphoresis*, he means exactly the same thing as if he said perspiration, or increased cutaneous secretion, or a discharge by the skin.

DIAPHORETICS are medicines which produce diaphoresis, or perspiration. When this effect is produced in a great degree, so that sweat is collected in drops on the surface of the skin, the medicines or means employed for this purpose are designated sudorifics, between which and diaphoretics there is no difference, the operation being the same, differing only in degree, or the extent to which the diaphoresis is carried. Sudorifics and diaphoretics may then be considered as synonymous terms. Physiologists feel some difficulty in determining in what manner this class of medicines operate, but this is not a matter of great practical importance, although it is always a pleasant circumstance to be able satisfactorily to account for the *modus operandi* of medicines, on the animal economy in health and disease. The most plausible supposition is, however, that perspiration is caused in all cases by a certain relation in the different parts of the arterial system to each other, by the reaction of the capillary vessels, after they have been in a state of complete atony, or while their action remains unaltered, yet that of the heart and larger arteries has been unusually excited. The application of external warm fluids taken into the stomach, the transient application of cold to the surface, as in the case of the cold or shower bath, as well as other methods of exciting perspiration, which at first view seem anomalous, and difficult to reconcile to any general principle, may, we apprehend, be all explained on the above supposition; and yet, what could appear a more unlikely plan of producing a glow of warmth and perspiration on the surface than plunging in cold water, but we know it will be followed by these effects. Among the most common diaphoretics, or sudorifics, may be enumerated the warm bath, either general or local fomentations, warm drinks, such as wine, whey, gruel, tea, ale, &c. &c., and of medicines, Dover's powder, antimonial wine, James's powder, the acetated liquor of ammonia, or mindererus spirit, sweet spirits of nitre, and nauseating doses of emetics. Guiacum, sarsaparilla, and their preparations, act as mild and slow diaphoretics. Combinations of opium, camphor, musk, and other antispasmodics, like-

wise produce this effect. The doses and diseases in which this useful class of agents are used, and other particulars respecting them, will be found under their respective heads.

DIATHESIS. When we speak or read of any particular diathesis, an expression of frequent occurrence even in popular medical works, we mean any particular state of the body. Thus, for example, in inflammatory fever, it is said there is an inflammatory diathesis, and in putrid fever, a putrid diathesis; in fine, any visible well marked tendency in a disease, is characterised by a corresponding diathesis.

DIET. The nature of the different articles employed in diet, have been shortly alluded to in the article *Aliments*. See *Appendix*.

Vegetables, as articles of diet, will be found described under their appropriate appellations. All therefore that we intend to state under this head, are only such facts and circumstances as could not with so much propriety be introduced under the paragraph to which we have alluded. Diet may be considered in various points of view, as to the nature of the articles employed, to the quantity used, the particular kinds of diet applicable to different diseases; and independent of disease, we may inquire into the kind of diet most suitable for different ages, constitutions, and circumstances, in which an individual may be placed. The first great division of the articles of diet into solids and fluids, may be divided into animal and vegetable: animal substances, as they are taken from quadrupeds, birds or fish; vegetables, as they consist either of the seeds, fruits, roots, or leaves of the respective plants.

Fluids may be arranged under the heads of aqueous infusions, decoctions, such as tea, toast and water, barley water, coffee, &c.; and fermented and distilled liquors, as ale, beer, wine, brandy, gin, rum, whiskey, &c. all of which will be found under their proper designations. In addition to these, which may be considered as including the principal classes of substances employed in diet, we have some of an intermediate nature, such as milk, which partakes both of the properties of solids and fluids. The action of the different processes of cookery in changing and modifying the consistence of those articles subjected to them, are likewise to be duly weighed and considered, and there are a variety of bodies employed in diet, which are not in themselves capable of nutrition, but which are agreeable to the palate, and supposed to promote the action of the digestive powers, or possess some accidental, or perhaps imaginary properties which have contributed to bring them into estimation. Tea and coffee, which when in a state of infusion, are so frequently used in our diet, may be taken as examples of the latter description of articles; as may sugar, salt, acids, spices, and various other articles usually denominated condiments, the nature and properties of which, whether real or supposed, will be found detailed in their proper places.

Digestion is one of the most important functions of the animal body, and is exercised by the stomach and contiguous parts of the alimentary canal; and (see *Alimentary Canal*) by which aliment received into the organs, undergoes a certain change in its physical and chemical properties, so as to fit it for the purposes of repairing the waste which is perpetually going forward in the system. The aliment is converted by the action of these parts into a pultaceous mass of a white colour, and sweet taste, called chyle, which is the immediate agent of nutrition. Whatever substances are employed in diet, it is found that in the same individual, or at least in the same class of animals, nearly the same kind of chyle is formed. From the nature of this work, and the limits to which we are confined, as likewise the various facts and circumstances connected with digestion and nutrition, which are diffused throughout our columns, it is not to be expected that we should enter into any lengthened physiological discussion on the process of digestion; but in the meantime we may remark, that there is reason to believe, that all the substances before they can be converted into chyle, are reduced to a state of very minute division, if not of solution.

New chemical combinations take place between their particles, and by some means a separation is effected between those parts that are adapted for forming chyle, and those which are rejected from the system, in the form of fæces. The ultimate elements of animal and vegetable substances being considerably different, the changes which they undergo must be so, likewise some bodies being capable of affording a larger proportion of chyle than others, and perhaps of a different quality.

All animal substances are composed of the same elements, although they exist in different proportions, and differ from vegetable substances principally in containing more azote and less carbon. The primary compounds which enter into animal substances may be compressed under the following heads: muscular, fibre, membrane, fat, albumen, and jelly. There are three circumstances in which they differ from each other, which may be supposed to affect the process of digestion; and these circumstances are their chemical composition, the state of aggregation of their particles, and the degree in which they are acted upon by the stomach. In reasoning on the subject, we might suppose that those substances which approach most nearly to chyle in chemical composition, yielded the greatest quantity of chyle, and were converted into that fluid with the greatest facility; and to a certain extent, this is believed to be the case, but their physical composition, it appears, has likewise a

considerable influence on the process. The change which takes place in the stomach is indeed a chemical change, yet it is so connected with the vital functions of the part, that something farther is necessary for perfecting the operation than the mere presence of the chemical elements. The mechanical structure of the stomach, (see *Abdomen*), and the parts connected with, and subservient to it, are very various, so that we find that particular classes of animals, and even particular individuals, are especially adapted for particular kinds of aliment. 'These differences seem,' says Dr Bostock, 'to attach more to the organs appropriated to the previous preparation of the food, the means by which it is comminuted or macerated, so as to render it proper for the solvent power of the gastric juice, although it is possible that the nature of the gastric juice may be different in different orders of animals. There is one important circumstance to be observed, with respect to the human subject, in which it appears to differ from all other species of animals, that while they have each of them some particular kind of aliment which is more peculiarly adapted to their respective natures, man appears to be better nourished by employing a variety of kinds of food.' A great deal has been indeed said and written about the diet most suitable to man. Formerly, it was the fashion to extol the numerous advantages attendant on frugal fare; it was asserted, that the more simple the diet the more healthy; that vegetable food was more conducive to longevity than animal, and that repasts consisting only of the fruits of the earth, and the water of the spring, were essential to a vigour of body, clearness of intellect, and peace of mind. Modern investigations have, however, overturned this beautiful and poetic system of dietetics, by proving that it has no real foundation in nature. If we only glance at the conformation of the human body, and inspect the peculiar structure of the organs employed in the various processes of digestion, to which we have above shortly alluded, we find that man is evidently destined to be an omniverous animal. If we look to his teeth, we find them to be adapted to the mastication of all sorts of food, whether fruits, roots, vegetables, or flesh, and his stomach is neither the short and simple intestinal tube of the carnivorous, nor the long and complex one of the graminiverous animals; in fact, that the stomach and intestines are calculated to derive nutrition from every species of food. In addition to this, man is the only animal that prepares his food, submitting the various articles of diet to processes which at once render them agreeable to the palate, and easily digested. In more plain terms, man, prompted by instinct, and assisted by reason, is the only cooking animal, the only one capable of modifying the properties of the various alimentary matters used by different classes, so as to render them suitable to his own nutrition. Hence the various operations of cookery are universally known, and have been practised from the most remote era, and there is no instance of a tribe or nation existing at any period, and unacquainted with the modes of preparing food. It is true, that until the arrival of Europeans in some of the Australian islands, the inhabitants were ignorant of the process of boiling water, but they were perfectly well acquainted with the modes of preparing food by roasting or broiling. 'The opinion of the poets and philosophers, that a simple diet was calculated to produce not only greater clearness of intellect and length of life, but also greater bodily vigour, does not seem,' observes Dr Graves, 'to be founded in truth, for it has been established, that persons living on a mixed diet, and using a large proportion of animal food, enjoy a great, if not superior longevity, and exhibit much more intellectual energy and bodily strength.' That persons living on a mixed diet, and using a large proportion of animal food, are stronger than those who subsist chiefly on vegetables, is proved by the experiment made with the dynamometer by M. Peron. He selected seventeen Frenchmen, fourteen Englishmen, fifty-six men of the island of Timor, seventeen New Hollanders, and twelve of Van Dieman's Land, (the three latter living chiefly on vegetables), and having ascertained their respective strength, he gives the mean results in each case. From the details, it appears the English rank first, next the French, then the inhabitants of Timor, and lastly, the men of New Holland and Van Dieman's Land. In the two latter, the greatest strength of the arms was equal to sixty-two kilogrammes, in the English trials, the greatest was eighty-three, and the smallest sixty-three. In the power of the loins, the highest among the New Hollanders was thirteen myria grammes, the lowest of the English was 12·7, and the highest 16·3. Thus, we see the English, who consume a considerable portion of animal food, are stronger than the French, and the French than the Oriental nations, who subsist chiefly on rice. The idea of living on a purely vegetable diet, originated in many countries from a notion that it was wrong and unlawful to deprive animals of life for the purpose of supplying bodily wants, which could be otherwise gratified; and it is the peculiar boast of those who profess this doctrine, that it is in strict accordance with the dictates of a refined and comprehensive humanity. But the discovery of the microscope has unfortunately stripped this doctrine of its most amiable character, by showing, that in chewing his crumb of cheese, the Pythagorean murders thousands of living beings, and in swallowing his cup of water, deprives myriads of life.

Good pure water is the best drink, because it is prepared by nature as the diluent of our more solid and substantial aliment; but in these reforming days, however, when the doctrine of total abstinence is so industriously inculcated, as it respects drink, there is some danger that enthusiasts in the cause may carry the principle a little farther, and adopt the vegetable regimen. To prevent, as far as in our power, the adoption or extension of so foolish and pernicious a system, we quote the following judicious remarks from Dr Graves, a gentleman to whom we have been under many obligations for many useful and practical remarks, both on this and other topics: 'I am persuaded,' says Dr G. 'that many of the opinions held at present with respect to diet, are founded on false theories. I am persuaded that simplicity of diet is too much insisted on in the treatment of dyspeptic and other cases. I believe that simplicity in prescription, and simplicity in diet, have been carried too far. It is now well established by theory, as well as by experience, that in prescribing we accomplish our object with more certainty and effect, by combining several remedies, than by limiting our practice to the employment of a single therapeutic agent. It is the same thing with respect to diet. I am not an advocate for luxurious living, nor would I recommend that excess of variety which characterizes the meats of the gourmand; but I think it is wrong and injudicious to make persons live on a single dish. There is a physical as well as a moral objection to it. The custom of partaking of various kinds of food, is not easily overcome; the patient grows tired of his solitary chop or beef steak, and feels no gratification in eating. Now, *ceteris paribus*, whatever is eaten with a relish, is more easily digested than that which is swallowed with indifference or dislike. Many persons assert that a meagre and scanty diet, in quantity much smaller than the appetite demands, and consisting merely of a little bread and gruel, is calculated to promote longevity, and maintain intellectual as well as bodily vigour. I do not believe this, and I have no intention of encouraging gastronomic ingenuity, but I must confess I look on such simplicity in diet as an error against nature. It is an error against the principle which has made man press into his service so many individuals of the animal kingdom, and convert so many vegetable substances to the purposes of his own habitation.' If we turn our attention for a moment to one class of those articles alluded to in the preliminary part of this section, and which are prepared by the hand of nature for the food of man and other animals, we shall find proof for the support of the principle for which we are contending. Let us look to milk, that substance which forms the only nutriment of the young of all the mammalia. Is milk a simple substance? No; it is a compound of saccharine, serous, oily, and albuminous principles, a substance which the simplifiers of diet would say was too complex to be presented to the stomach; and yet it is that which nature has destined for the only support of a vast number of animals, and man, at the tenderest period of existence. Again, let us look at the food prepared for graminiverous animals, and we shall find that nature has been here equally varied, and equally beneficial in her productions. It would be impossible to get a pasture in which the grass is restricted to a single species. In most pastures there are from fifteen to twenty different kinds, differing in the nature and combination of their vegetable principles, and having separate effects on the economy. Had nature limited the horse or the ox to a single species of grass, this profusion would not have existed; but it was never intended that man and his fellow animals should adhere to a strict simplicity of diet. On the contrary, we feel fully convinced that a certain variety in food is highly essential to the restoration or maintenance of health. This opinion may to some appear strange, but we can aver, from extensive experience in every climate, and among almost every class of society, that those who treat the valetudinarian and dyspeptic on these principles, will be more successful than those who restrict them to a single, and especially a continued use of one species of food for any length of time.

Experimental physiologists have elicited a number of important facts bearing on this question, and Magendie has shown that dogs fed on sugar alone, become, after a certain time, weak and emaciated, lose their sight from ulceration of the cornea, and ultimately die. Raspail, too, has shown that glutin, the nutritive principle in plants, will not sustain animal life, and that neither sugar nor glutin is alone capable of supporting life; but if combined, they afford a wholesome and nutritious diet. The human body is not simple; it consists of a great number of fluids and solids, which differ essentially in their nature and chemical composition. Into this composition a great number of elementary principles enter, and is it not then reasonable to suppose that a variety of materials will be required? For example, egg shells are composed of the phosphate of lime, and if the common dunghill fowl, or indeed any other fowl, are confined to a simple species of food that will not yield this substance, they will produce eggs without shells, or, in common phraseology, *wind eggs*. If we were to reduce diet to such a state of simplicity as to diminish the number of the elementary principles which enter into the composition of solids, the nutrition of the body could not go on, and the absence of those principles which constitute the phosphate of

lime, would produce as injurious effects on the bones of man, as it does on the egg shells of poultry, and perhaps give rise to the disease denominated softness of bone; while, on the contrary, a superabundance of the same principle, and a want of those that produce albumen, glutin, and cartilage, the bones would become brittle, and break on the most trivial exertion. 'It is true,' remarks one of the distinguished physiologists that we have already quoted, 'that nature is able to manufacture a great many different elements from very few materials, but a certain number of principles must exist to enable her to prepare the compound which she employs for repairing the various wants of the system.'

As corroborative of the correctness of the view we have taken on this very important subject—a subject which it is one of the chief designs of this work to illustrate—we cannot refrain from quoting the following judicious remarks from the *Quarterly Review* :—'In France (says the reviewer) most substances are exposed through the medium of oil and butter, to a temperature of at least 600° Fah. by the operation of frying, or some analogous process. They are then introduced into a macerating vessel, with a little warm water, and kept for several hours at a temperature far below the boiling point (212°), not perhaps higher than 180°, and by these united processes, properly conducted, the most refractory articles, whether of animal or vegetable origin, are reduced more or less to a state of pulp, and admirably adapted for the farther action of the stomach. In the common cookery of this country, on the contrary, articles are usually put at once into a large quantity of water, and submitted, without care or attention, to the boiling temperature. The consequence is, that most animal substances when taken out, are harder and more indigestible than in the natural state; for it is well known that albuminous substances, (as, for example, white of egg), become the harder the longer they are boiled.' An excellent illustration of the process, as laid down by the reviewer, is afforded by the liver and kidneys, each of which becomes remarkably harder, in consequence of the common methods of cooking. There can be little doubt that the livers destined for the food of dogs, are rendered much less palatable and digestible by the pains the unwilling cook is forced to bestow on them. These observations are often of the utmost importance in a medical point of view. When the powers of the stomach are weak, a hard, and crude English diet, (such, for example, as half-raw beef steaks, &c., frequently recommended), is sure to promote much discomfort, by promoting acidity, while the very same articles well cooked upon French principles, or rather the principles of common sense, can be taken with impunity, and easily assimilated. One of our ablest physicians has remarked, that our principal alimentary matters may be reduced to three classes, of which sugar, butter, and the white of eggs, are the representatives. Now, it is a curious circumstance, that milk, the only article prepared and intended by nature as an aliment, is a compound of all the three classes, and almost all the graminiverous and herbaceous matters employed as food by the lower animals, contain at least two, if not all the three. The same is true of animal aliments, which consist at least of albumen and oil. In short, it is almost impossible to name a substance employed by the higher animals as food, that does not essentially constitute a natural compound of at least two, if not all the three, of these great principles of alimentary matters. It would seem, therefore, from every fact and argument that can be adduced, that various food is the most wholesome for man, and that he thrives better on a proper admixture of vegetable and animal diet. The Brahmins, who feed solely on rice, are not long lived, and are endowed with feeble constitutions; on the other hand, the Esquimaux are obliged to mix saw dust with their train oil. But it is in the artificial food of man, that we see this great principle of mixture most strongly exemplified. Dissatisfied with the productions spontaneously furnished by nature, he culls from every source, forms in every possible manner, and under every disguise, the same great alimentary compound. This, after all his baking, roasting, stewing, &c., how much soever he may be disinclined to believe it, is the sole end and object of his exertions. Even in the utmost refinement of his luxury, the same great principle is attended to, and his sugar and flour, his eggs and butter, in all their various forms and combinations, are nothing more nor less than disguised imitations of the simple elementary prototype, milk. To this wise provision of nature, does the lower class of Irish owe that share of health and vigour they enjoy. Potatoes and milk afford a greater variety of elementary principles, than a person, ignorant of the facts we have stated, would suppose; and although potatoes contain a considerable quantity of starch, yet, when long continued as an article of diet alone, without any admixture of milk or animal food, the health and vigour soon begins to fail, and disease is widely diffused throughout the districts of that country where such a state of living exists. Indeed, to the want of a suitable variety in diet, may be principally attributed the ravages of epidemic fever, diarrhæa, and dysentery, and cholera, that so frequently pervade that country. We hope, however, the time is not far distant, when this cause of suffering, disease, and death, will be in a great measure removed, and when the people of Ireland will not only raise vegetable and animal food for

exportation, but also an abundance for themselves and their families.

So far as to the principles of diet. A few facts may be here mentioned, with respect to some particular articles of food in addition to those diffused throughout this volume. It is a curious fact, that certain principles become developed in chocolate and cocoa when long kept, which render them injurious to the sight. Persons who have used these substances, (but particularly cocoa), for a long time, are apt under such circumstances to get weak sight, and amaurosis. Chiccory also brings on amaurosis; and this substance is not unfrequently used for adulterating coffee. Rice also appears to be bad for the sight, particularly when used in a damaged state; and it has been frequently remarked, that the number of blind persons in the east, and of slaves in Carolina, is very great. Dr Tytler has gone so far as to assert, that the oriental cholera depends on spoiled rice; this, however, is not borne out by facts, for we have had it raging among a population the majority of which seldom taste rice, and many of them never saw it, much less tasted it.

In fine, we may remark, that even water, as nature offers it for our use, is by no means a simple substance, and free from what the ignorant would call impurities, as whether we draw from the spring or the river, it contains a variety of salts, gases, &c.; and when perfectly purified it becomes at once unpalatable and indigestible, until measures are taken to impregnate it with atmospheric air, or those gases of which the air is composed.

Those who wish for more extensive information on the subject of diet, may consult the 104th number of the Quarterly Review, from which we have quoted, or Combe on Health and Dietetics, and Dr Paris on the same subject. But we question if they will find even in these works any important fact or circumstance, either connected with the diet of the sick or the healthy, that may not be obtained from an attentive perusal of this work, and we are confident, they will find in our columns as extensive and correct information respecting particular alimentary substances, as in any other one volume yet extant in the English language.

DIET DRINK. A variety of formulæ in the form of decoctions, formerly went under this name; but the only one now in use, and which has continued to maintain its celebrity, is the Lisbon Diet Drink, or Compound Decoction of Sarsaparilla, and was known by the name of Diet Drink, being taken daily in considerable quantity, from a pint to a quart. See *Sarsaparilla* and *Guiacum*, the compound decoction of which was likewise known as diet drink, as well as by the name of Decoction of the Woods, an appellation by which it is yet very generally known. Both of these forms of diet drinks are useful alteratives, and frequently used with advantage in rheumatic affections, cutaneous diseases, and in the sequel of syphillitic complaints.

DIGESTER. An instrument sometimes called Papin's Digester, because invented by a chemist of that name, more than 100 years ago. It is a strong iron vessel, capable of sustaining a strong and long continued degree of heat, with a cover adapted to screw on, with pieces of cloth, felt, or paper, interposed. In the cover there is a valve or small aperture, which may be more or less loaded, either by actual weight, or on the principles of a steelyard. The purpose of this instrument is to save the loss of fluid by evaporation, as the solvent power of the water, when heated and converted into steam, is greatly increased. It is used for the purpose of extracting all the soluble matter of bones. The small valve or aperture allows the escape of a small portion of the steam, and prevents explosion.

DIGESTION is the name applied to the functions by which the formation of chyle from the various alimentary substances is effected, and may therefore be termed one of the principal nutritive functions.

To produce the chyle, or nutritive fluid, the digestive organs act upon the various articles of food, triturate, change, and decompose them, and then separate from them a gross or feculent portion, which is excreted or thrown off externally, whilst the nutritive part, or chyle, is taken up by the lacteals, and conveyed by the thoracic duct into the subclavian vein, and so into the circulation.

The organs of digestion are, 1st, The mouth, including the organs of mastication, or chewing, which is the first part of the digestive process, the salivary glands. 2nd, The pharynx and œsophagus. 3dly, The stomach. 4thly, The intestinal canal, liver, and pancreas. As these parts are particularly described in various parts throughout this work, we will not indulge in a repetition here, further than merely to mention the general disposition of the parts, as regards this particular function. We may briefly describe the greater part of the digestive apparatus as, 1st, A long canal of an extensible and contractile nature; at one part consisting of a long straight tube, where the transit of the masticated food is necessarily rapid. 2ndly, A membranous and muscular cavity, which is destined to receive and contain the food, until it has undergone certain changes. 3dly, A longer tube more twisted, or forming convolutions, in which the passage of the food is slower; and, 4thly, Into different parts of this tube are poured the various secretions destined to act on the food. This whole extent of the digestive canal is lined with mucous membrane, the arrangement of which differs, however, considerably at different points. As for example, in the small in-

testine, where the principal part of the digestive function goes on, it is arranged in the form of valves (see *Alimentary Canal*), so as to delay the passage of the food, and thus allow time for the chyle to be separated from the feculent part of the food, and taken up by the chyliferous or lacteal vessels. The digestive organs have also a muscular coat, composed of two layers of fibres, one longitudinal, and one circular. The chyliferous vessels are believed to arise exclusively from the small intestines, although some circumstances would seem to discountenance this idea. The mucous membrane furnishes a quantity of tenacious or glutinous substance, termed mucus, which lubricates its surface; its chemical composition is not very well known, though it is pretty generally admitted to possess acid properties.

Having thus attempted to describe the general disposition and arrangement of the digestive apparatus, we shall now proceed, briefly, to describe the process of digestion.

In the first part of this process, the food received into the mouth is bruised, or triturated, by the teeth and organs of mastication, and mixed with the saliva, or secretion of the salivary glands; it is thus formed into a bolus, which is carried back by the tongue, to the upper part of the pharynx, which has been drawn up by means of its muscles, so as to be ready to receive it. When the bolus has entered the pharynx the muscles which have raised it relax, whilst the muscles attached to the hyoid bones act and depress, or at least assist in drawing it down, at the same time the muscles forming the walls of the pharynx, called constrictors, act on the bolus of food, pushing it down towards the œsophagus, or gullet, which in its turn pushes it on towards the stomach. These are termed the acts of mastication and deglutition, and may be considered either as only preparatory to, or as the first part of digestion. The food received into the stomach remains there for some time, differing according to its nature, of whether it be easily digestible, or otherwise; and here it is acted on by the gastric juice, a peculiar secretion from the coats of the stomach, and is converted into a grayish coloured pultaceous mass, called chyme. The food under this form, next passes from the stomach into the duodenum, where it is mixed with the secretions from the liver and pancreas, (the bile and pancreatic juice), and here the principal purpose of this function commences, namely, the formation of the chyle, the passage of the alimentary mass being delayed in this and other parts of the small intestine by the valves; and here we find the lacteal vessels most numerous. When the food, or rather the refuse, or feculent part of it has reached the large intestine, and indeed toward the lower part of the small intestine, it has begun to assume the character of the fæces or excrement, which being propelled along the remainder of the canal, by the action of its muscular coat, is finally voided by stool. The nutritive product, or chyle, having been taken up by the numerous lacteal vessels, is conveyed by them towards the receptaculum chyli, or commencement of the thoracic duct, or great lacteal trunk; passing, in their course towards it, through the mesenteric glands, where the chyle seems to undergo still further elaboration. Having passed into the thoracic duct, the chyle is next conveyed by it into the subclavian vein, and so through the circulation, to nourish the various parts of the body, and repair the constant waste which takes place in the animal economy.

DIGESTIVES. In surgery, this term is, or rather has been, used in reference to such ointments, poultices, and plasters, as promoted, or were believed to promote, bealing or suppuration, when applied to a wound or ulcer; such as the yellow basilicon ointment, the ointment of elemi, and roasted or boiled onions, &c. The term is, however, fast falling into desuetude.

DISLOCATION OR LUXATION. Means the displacement of the articular surface of a bone from its natural situation. Dislocation may either be the result of violence, as from falls, &c., or of the action of some of the neighbouring muscles, or of disease of the joint. Dislocation is said to be simple, when the displacement occurs without any breach of surface; compound, when along with the displacement there is a wound of the superimposed parts which communicates with the joint; incomplete, or sub-luxation, when the displacement is only partial. When dislocation occurs, in consequence of disease, producing ulceration of the ligaments, cartilages, or articular cavities, or surfaces of the bones, it is termed spontaneous.

The general symptoms of dislocation are deformity, immobility of the part, and it is distinguished from fracture by the absence of the crackling sound, or crepitus; and by the injured parts in cases of fracture being capable of unnatural mobility.

The treatment of dislocations require much skill and anatomical knowledge. Yet there are few injuries which have been more left to the care of ignorant pretenders, or bone setters, as they are called; and many a limb has been rendered useless in consequence, the patient persevering in the treatment till it is too late to be remedied; and therefore, although we shall briefly describe those dislocations which most frequently occur, for the benefit of those placed at a distance from surgical aid, yet, in every case where such aid can be had, no time should be lost in procuring it.

The first dislocation we shall treat of is that of the shoulder joint, as it is the one which occurs perhaps most frequently; and will also serve to illustrate the general principles to be

Fig. 3

Fig. 1

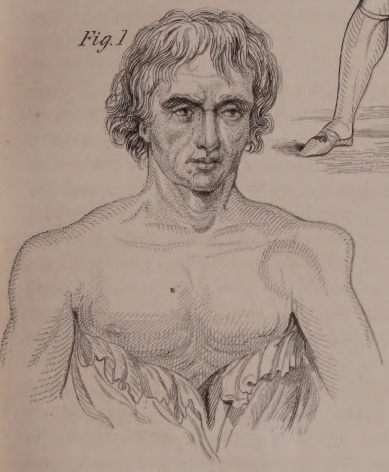


Fig. 2

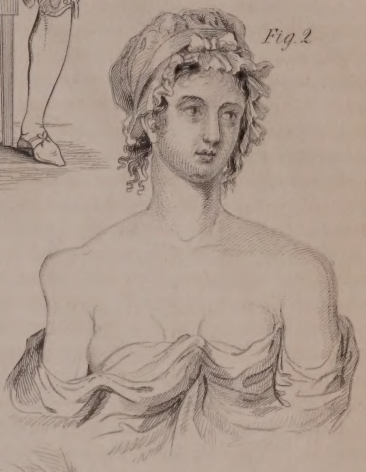


Fig. 4

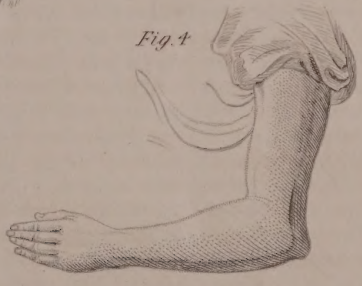


Fig. 5

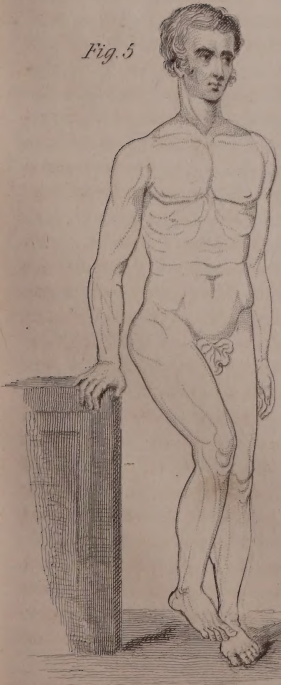
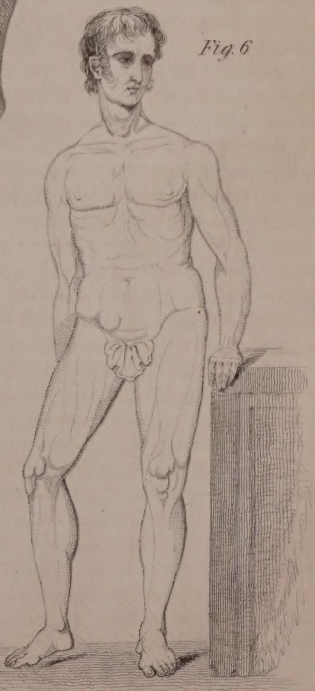


Fig. 6



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attended to in the reducing of dislocations. Dislocations of the head, of humerus, or bone of the arm, from the glenoid cavity of scapula, with which it is articulated, occurs in three directions, viz. downwards into the armpit, or axilla; forwards on the ribs, beneath the pectoral muscle; backwards, on the back part of the scapula, or shoulder blade. When the head of the humerus is displaced downwards, the arm is elongated, and held in a semi-flexed position; the elbow removed from the side, and a depression, or flattening of the shoulder, is observed beneath the acromion process of the scapula, which appears to project owing to the head of the humerus being displaced; the elbow cannot be brought towards the side, and the arm is immovably fixed, and there is great pain at first, succeeded by numbness in the arm and hand, from the pressure on the nerves by the head of the bone. The appearances accompanying this accident are delineated in fig. 2. of the plate of Dislocations.

In luxation forwards, the general appearance is somewhat similar, but the arm is shortened, and the elbow projects more outwards and backwards; and the swelling caused by the head of the bone, can be seen or felt under the pectoral muscle on the fore part of the chest. See fig. 1, plate of Dislocations. The displacement backwards is of very rare occurrence; there is flattening of the shoulder, as in the other dislocations, and the nature of the accident is rendered apparent, by the protuberance caused by the head of the bone lying on the back part of the shoulder blade; the arm admits of more motion in this than in any of the other dislocations.

The reduction of dislocation of the shoulder may be accomplished by either of the following methods. The patient being seated on a chair, the surgeon then rests his foot on the seat with him, and places the luxated arm over his knee; he then abducts the arm, and using the humerus as a lever, he extends the limb; next raising the head of the bone, he brings it into such a position, as to permit it to slip back into the glenoid cavity. Or it may be performed as follows: placing the patient in a recumbent position, the surgeon makes counter extension, by means of his heel, placed in the axilla of the dislocated arm, whilst he makes extension by grasping the wrist with both hands, or by means of a towel secured above the elbow; by turning the patient a little to the sound side, the extension can be made outwards and backwards, and the reduction will be still farther facilitated by a strong assistant grasping the patient, so as to fix the shoulder-blade. Should these means fail, mechanical means, such as pullies, &c., must be had recourse to; but this of course can never be done except by a professional person. If the patient is strong and muscular, or if some time has elapsed since the receipt of the injury, it will be proper to have recourse to bleeding, warm baths, and nauseating doses of tartar emetic, to produce a degree of faintness, and so diminish the resistance offered to reduction by the surrounding muscles.

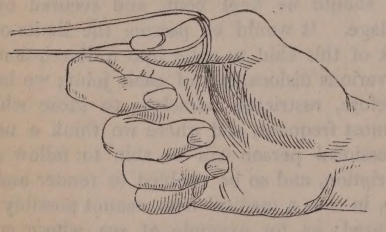
Dislocation of the humerus is an example of displacement, as it occurs in what are called orbicular articulations, or those admitting of free rotatory motion. The next accident we have to mention, is dislocation of the elbow, which is a hinge-like articulation. The elbow may be dislocated in five different ways: 1st, Both bones of the fore-arm backwards; 2ndly, Both bones laterally; 3dly, The ulna backwards, whilst the radius remains in its natural position; 4thly, The radius separated from the ulna, and dislocated forwards; 5thly, The radius dislocated backwards. The first or dislocation of both bones backwards is the most common, and is strongly marked. There is a great projection, posteriorly caused by the ends of the ulna and radius; there is a large hard swelling at the forepart of the joint, caused by the lower articular end of the humerus; the hand and fore-arm are supinated, (that is, the palmar aspect of the hand and fore-arm turned upwards), and they cannot be turned downwards. This accident is generally caused by a fall; the person putting out his hand to save himself, the whole weight of the body being thus thrown on the radius and ulna, which are forced backwards.

Treatment. Seat the patient in a chair; take hold of his wrist, and put your knee on the inner side of the elbow-joint; then bend the fore-arm, and at the same time press on the ulna and radius, so as to separate them from the humerus. Whilst this pressure is kept up by the knee, the arm is to be forcibly, at the same time gradually bent, and the bones will slip into their places; after reduction, the arm should be kept bent, and secured by a bandage. It would be passing the limits of a work of this kind to enter into a description of the various dislocations of each joint; we have therefore, restricted ourselves to those which are most frequent, and where we think a non-professional person will be able to follow our description, and so be enabled to render assistance, in case a medical man cannot possibly be procured; as, for example, at sea, where such accidents frequently happen. But for further information than this, we must refer them to surgical works, few of which are now so loaded with technical terms as to prevent any one understanding their general directions; and it would be well that masters of merchant vessels provided themselves with some such surgical works. We shall, therefore, proceed to describe briefly dislocation of the wrist, lower-jaw, and the more common dislocations of the lower extremities.

Dislocation at the wrist may take place in

three ways: 1st, The bones of the carpus (see Skeleton) are thrown backwards; in this case there will be a large prominence on the back part of the fore-arm, and another swelling, but less prominent, on the fore part, and the hand is bent back. 2ndly, The case may be reversed; the carpus being thrown forwards under the flexor tendons. Either of these accidents can be readily distinguished, and the reduction of both is accomplished in the same manner. Grasp the patient's hand with your right, and support the fore-arm with your left hand, whilst an assistant places his hand firmly round the arm, just above the elbow. Then let both extend, and the bones are soon replaced. A roller should be applied round the wrist, and a pasteboard splint be placed before and behind the fore-arm, reaching beyond the palm of the hand. Sometimes the radius or ulna are dislocated separately, most generally the radius; the method of reduction is the same as directed above.

Dislocation of the thumb sometimes occurs. The proximal or upper phalanx being thrown upwards on the back part of the metacarpal bone, and the nature of the accident is at once apparent; but it is perhaps one of the most difficult dislocations to reduce, and sometimes it has been necessary to divide one of the lateral ligaments before this could be accomplished. Counter extension is to be made by a handkerchief passed across the palm of the hand, beneath the metacarpal bone, and the arm at the same time fixed by an assistant. Then extension is made by means of a piece of soft cord fixed by a noose, called by sailors the clove-hitch, applied near the end of the thumb. The appearance of the dislocated thumb and the cord, so applied, is represented in the accompanying wood-cut.



Dislocation of the lower jaw can scarcely be mistaken, and it often occurs in weak persons whilst yawning. It may be either partial or complete. In complete dislocation, the chin projects forwards and downwards, the mouth is wide open, and the jaw fixed. When one side only is displaced, the chin is twisted, the mouth a little open, and the motions of the jaw limited. The reduction is simple: the thumbs of the surgeon must be protected by thick gloves or the folds of a napkin, and placed upon the back or molar teeth, whilst the fingers embrace the jaw and symphisis, and thus, by depressing the condyles, and at the same time raising the chin, the articulating processes are suddenly acted on, and restored to their natural position.

Dislocation of the hip joint takes place in four different directions. We have given representations of the two which occur most frequently, in our plate of Dislocations, figs. 5th and 6th, and these will convey a better idea of the appearance of these accidents than any description we could give the general reader; but as the first of these, or dislocation on the back part of the haunch bone, is of frequent occurrence, we shall briefly describe its diagnostic marks, and the method of reducing it. This displacement is produced by the patient falling when the knee and foot are turned inwards; or by a blow received whilst in that position. The toe rests against the tarsus of the opposite foot; the knee and foot are turned inwards, and the knee is somewhat advanced upon the other; the limb is shortened from one and a half to two inches, and sometimes more; the trochanter is less prominent, and the limb cannot be abducted. If the patient is seen immediately and before the faintness produced by the accident has gone off, reduction may be effected by the following means:—A folded shawl or table-cloth is placed between the thighs, one end being brought up across the groin, and the others passed beneath and behind the hip. The ends are then crossed and grasped by a powerful assistant, who thus exercises counter-extension; whilst extension is to be made obliquely downwards and forwards by means of a cloth fixed round the thigh, above the knee-joint; the reduction will sometimes be facilitated by placing a napkin under the upper part of the thigh, so as to raise the head of the bone over the brim of the acetabulum. The ends of the napkin are given to an assistant, who raises the thigh, whilst extension is making as above directed. The other dislocations occurring in the lower extremities, are generally of such a nature as to render it impossible for us to enter into the details of their marks and treatment here, as it would be of little service to the general reader.

Compound dislocations are usually attended with so much injury to the soft parts, as for the most part to require amputation, either primarily or secondarily.

DISSECTION WOUNDS. See *Wounds, Poisoned.*

DISTILLATION. The vaporization, and subsequent condensation of liquids, by means of a retort, or still.

DITTANY OR BASTARD DITTANY, sometimes called WHITE DITTANY OR WHITE FRUSINELLE; the *Dutanus Fruxinella* of the pharmacopeias. This plant, which is a native of Europe, has shared the fate of

many others. It was long a favourite and fashionable medicine, and much used as a stomachic tonic, and elixipharmic. It was supposed to be a medicine of great efficacy in removing uterine obstructions, and destroying worms; but it fell into disuse, till of late, when it has again attracted the notice of the faculty, by its having been announced, that a foreign physician of eminence had been in the habit of employing it with great success in the cure of epilepsy for forty years, and that his family still continue the practice. Baron Sloct published several cases of its success in tertian intermittants, worms, and menstrual suppressions. In all these cases, he employed the powdered root to the extent of a scruple twice a day; he also made use of a tincture prepared of two ounces of the fresh root (the dry would have been better), digested in fourteen ounces of rectified spirit; twenty to sixty drops, two or three times a day, were successfully employed in epilepsies. The root is the only part used, and is imported in a dry dressed state; it is whitish, more or less rolled or quilled by drying, and has a faint aromatic odour, and a bitter mucilaginous taste.

There is no doubt it possesses considerable powers as an aromatic tonic, and as it may be easily raised in Britain, it deserves attention as a valuable addition to our stock of domestic medicines. The relief it affords in epilepsy, is doubtless to be ascribed to its favourable effects on the stomach and digestive organs. We have just noticed the case of a young lady, in a medical periodical, whose health has become greatly improved by its use; and the fits of epilepsy with which she was attacked, much less frequent. Cases of this kind should, however, be received with limitations, as they lead the public, and even the medical profession, to look for more from a medicine, especially of a new or renewed remedy, than they have any right to expect.

DIURECTICS are those medicines which increase the secretion of the kidneys, and consequently the flow of urine. The principal diuretics, such as foxglove, squills, broom, spirit of nitrous ether, &c. will be found treated of under their different designations, and in those diseases in which they are indicated.

DOGWOOD or COMUS FLORIDA. The bark of this tree contains quinine and gum, and is said to be a good substitute in many cases for the cinchona, or Peruvian bark. It certainly possesses tonic and astringent powers, and may be used in all those cases in which its great prototype is usually employed in the same doses, viz. from one to two scruples, in the form of powders.

DOVER'S POWDER. The compound powder of ipecacuan with opium, is so called, after its inventor.

Its composition is as follows:

Take of Powdered Opium, one part,
——— Ipecacuan, one part,
——— Sulphate of Potass, eight parts,
Mix intimately.

In ten grains of the powder, we have one grain of opium, and one of ipecacuan; the use of the sulphate of potass being mechanical, to effect the more complete trituration and mixture of the two ingredients. As this powder is sometimes objected to by patients on account of its bulk and taste, a draught formed by combining laudanum with ipecacuan wine, in proportions equivalent to the powders, and mixed with a little common or cinnamon water, forms a good substitute. Its effects are diaphoretic, sudorific, and anodyne.

DRACONTIUM or SKUNK CABBAGE, or *Fœtidum Dracontium*. The root of this plant, as its name implies, has a rank and disagreeable odour, with an acrid biting taste, and possesses antispasmodic and expectorant qualities. The powder of the dried root is given in doses of from ten to thirty grains three times a day, and has been highly recommended in asthma, hysteria, chronic rheumatism, and hooping cough, and in the form of an enema to dislodge the ascarides, or small thread worm, that nestles in such numbers in the folds of the rectum. Indeed, it is said, on good American authority, to have many qualities in common with assafœtida, and it has a place in the U. S. pharmacopeia.

DRAGON'S BLOOD, or *Sanguis Draconis*. This was at one time a very celebrated medicine, for the cure of a variety of complaints. It is now almost entirely out of fashion with the faculty, but still employed by many in domestic medicine, and in the diseases of horses and cattle, and although it is not an expensive drug, it is seldom procured pure or genuine. It is obtained by wounding the bark of the *Calamus rotang*, or the product of the *Pterocarpus draco*, and *dracona draco*. When genuine, it is a pure, clear, resinous substance, breaking smooth, free from any dust or sand, without smell or taste, of a dark red colour, which turns to an elegant bright crimson upon being reduced to fine powder. It is not acted upon by water, but almost entirely dissolves in spirits of wine, and gives a red colour and hot pungent taste to oils, readily melts in a red hot iron, catches flame, and imparts a beautiful red stain to hot marble. It was long used in hemorrhages, alvine fluxes, and where no other remedy can be obtained, it may yet be employed in those diseases, in doses of five grains of the powder, three times a day, increasing the dose one grain each time, till the desired effect is produced. It is, however, more employed in the arts than in medicine, and it is well to know the characters of the genuine article.

DRASTICS. This term is generally applied to that class of cathartic or purgative substances, which appear actually to augment the quantity of fœcal matter, such as aloes, jalap, colocynth,

scammony, senna, turpentine, rhubarb, and some others of less efficacy. There is another class of drastics, sometimes called *hydragogues*, which produce watery evacuations; among the milder of these we may class the Glauber, Epsom, Rochelle, tasteless, and other neutral salts, when given in sufficient doses; and among the more violent, elaterium, gamboge, black hellebore, and some metallic preparations, among which the most important is calomel, especially when combined with jalap.

DRINKS. The appetite of thirst warns us to dilute our food, and repair the constant waste of the animal fluids by taking a certain quantity of liquid into the stomach; and so urgent is this call, that we bear hunger much longer and with less bad effect than thirst.

Water is undoubtedly the natural drink of man; but there are many others which may be taken not only without injury, but with advantage to the health, if only taken in moderation. Such are beer, porter, cider, milk, &c. The quantity of drink required varies according to the climate, the nature of the solid food taken, and individual peculiarities. Persons generally should be careful not to take much fluid at meal time, as it prevents the food being properly acted on, by diluting the gastric juice, and distending the stomach; perhaps the best time for taking drinks of any kind, is that generally pointed out by nature an hour or two after meals, as shown by the degree of thirst which is then felt, and the best drink which can be taken after a solid meal, such as dinner, is a little good beer, a small quantity of wine and water, or coffee.

Acid drinks, such as cider, perry, &c. although refreshing and wholesome to those in good health, should be carefully avoided by dyspeptics. In cases of fever, or other diseases where thirst is urgent, it will be found, that the best method of allaying it is to give drinks of a mucilaginous kind, slightly acidulated, and in small quantities at a time, as rice or barley water with lemon juice, or by giving small quantities of soda water.

DROPSY. A collection of water or serum in certain parts of the body, is called a dropsy of the part in which it occurs. For example, when serum or a watery fluid is accumulated in the cellular membrane, it is called anasarca or general dropsy, of which there are several varieties, and which we have considered under this head at as great a length as our limits would possibly admit. Again, when water accumulates in the abdomen, the disease is called ascites, or dropsy of the belly. This also being a very common disease in these kingdoms, we have also described with considerable minuteness. Water in the head, or dropsy of the brain, will be found under *Hydrocephalus dropsy;* of the testicle, under *Hydrocele.*

And first, of dropsy of the cellular membrane, usually denominated anasarca, or general dropsy. In Scotland it is called dropsy between the fell and the flesh, or more scientifically, dropsy of the cellular tissue. When the disease becomes general, it may be defined soft swelling over the whole of the body, generally most prominent in the lower extremities, and leaving a deep pit or mark on being pressed by the fingers or thumbs. The first visible symptom of anasarca is a soft inelastic swelling about the ankles, leaving a mark, hole, or pit, on being pressed, as already described. Sometimes it will commence in one ankle only, and sometimes in both, the foot, especially the instep, partaking of the swelling. This swelling gradually rises, and affects the legs and thighs, and ultimately the whole body, not even exempting the face. The internal cellular membrane soon becomes a participator of the affection, and the abdominal and thoracic viscera to feel oppressed. The bowels are tardy, and the stools frequently assume a clayish colour; the kidneys are still more inactive, and secrete but a small quantity of high coloured urine; but sometimes they appear as if resolved to do their duty, and a greater quantity of pale urine is discharged. The skin assumes a pale, doughty appearance, and a fluid at length oozes out through its numerous pores, especially in the lower extremities; and when this takes place, there also exists a low kind of erysipelatous inflammation, as if an alliance obtained between the latter disease, (viz., erysipelas), and anasarca. Oppression is felt at the chest, with a low hectic fever, and teazing cough. In the male, especially the young, the external membrane of the generative organs is greatly distended, with a clear, almost transparent fluid, and the thirst is in many cases insatiable.

This disease is to be distinguished from ascites, or dropsy in the belly, by the absence of fluctuation being felt, when the abdomen is struck by the hand, as is the case in the latter disease; although it should be borne in mind, that anasarca, if neglected, may give rise to ascites, and the diseases become, as they often are, complicated in the same individual. It may likewise be distinguished from sympathetic or flatulent swelling, by the crackling noise of the latter, as a collection of air in the cellular tissue or membrane is attended with a crepitating or cracking noise, and may and does most frequently exist without any alteration in either quantity or quality of the urine.

The most favourable symptoms are, the absence of any organic disease of the viscera, especially of the lungs, heart, liver, or kidneys; the effusion being the result of mere debility, and the sequel of some febrile affection, such as scarlatina and other diseases, which anasarca frequently follows. Again, the most unfavourable prognostics are the presence of such organic affections, attended with great emaciation, and

a tendency to erysipelas of the lower extremities, with a continued celerity of pulse, with great drowsiness, aversion to motion, and the continuance of a scanty discharge of high coloured urine.

Treatment. If the disease is of a chronic form, and has continued for some time, and is unattended with fever, and moreover of diarrhæa, and other derangement of the bowels, especially if even the slightest dysenteric appearances are present, then the warm bath with frequently repeated doses of Dover's powder, should be given, that is to say, twice a day, so as to produce a determination to the skin. A cupful of thin, well-boiled sago, or arrow-root jelly, as warm as the patient can swallow it, should be given every other hour, with two tea spoonfuls of gin in each cupful. When the swelling in the limbs is very troublesome, and the skin as if it would burst, the anasarcous fluid may frequently be drained off by perforating the skin with a needle to the depth of three lines of an inch, and forty or fifty perforations may be made. This will tend to prevent any excessive accumulation of fluid in the cellular membrane. When the swelling extends to the parts of generation in the male, which it frequently does, and as the membranes are often prodigiously distended, the scrotum and prepuce are to be quickly pricked with a needle in forty or fifty parts, according to the size of the swelling, so as to give as little pain as possible to the patient; indeed, the operation is by no means painful. These means will often succeed in drawing off the fluid, and in conjunction with the Dover's powders, have been employed with great success in the Meath hospital. As soon, however, as the Dover's powder and suitable diet have removed the untoward state of the bowels, one of the following pills should be taken three times a day:—

Mass of the mercurial pill, one dram.
Powder of squills, two scruples.
Powder of digitalis, half a dram.
Syrup of ginger, as much as is necessary to form the ingredients into a uniform mass.
Divide into thirty-two pills.

The following draught to be used at bed time:

Tincture of opium.
——— lactucarium.
——— henbane.
——— lobelia; each twenty-five drops.
Sweet spirits of nitre, forty-five drops.
Mix in a wine glassful of water, and form a draught.

In the morning the enema of castor oil and turpentine may be administered. This medical treatment may be continued for some time, with a mild nourishing diet, and sodaic powders, taken in a weak sweetened infusion of ginger, in place of water.

Dr Thomas Short, with whose remarks on dropsical affections we generally agree, has in the thirty-seventh number of the *Edinburgh Medical and Surgical Journal*, invited the attention of the profession to the effects of the *marchantia hemispherica* or liver wort, in the treatment of this and several other forms of dropsy, and has found it successful in anasarca, when the ordinary means have failed.

The remedy is employed in the form of poultice, three handfuls of the leaves being infused in a quart of boiling water for twelve hours, and then mixed with as much linseed meal as will make the usual consistence of a poultice, which is then to be spread on flannel, and applied over the abdomen, and fastened pretty tightly down by means of a bandage. Dr S. has found this very successful, but if it does not begin to act in the course of four or five days, recourse should be had to the more established remedies, such as squills combined with mercury, acetate of potass, with infusion of quassia and other diuretics, gentle laxatives and tonics.

Our remarks have hitherto been confined to those cases of chronic anasarca unattended with fever; but in acute inflammatory cases, another line of practice must be pursued. In these cases the disease makes its appearance very rapidly; shiverings or rigors frequently occur, an uneasiness is felt at the stomach, there is urgent thirst, and often a vomiting of a bitter fluid, which soon ceases after the swelling of the limbs has commenced. The bowels are not in general costive, but the urine, with few exceptions, scanty, and the pulse full and firm. If the patient is young, and the constitution unimpaired, blood should be freely abstracted from the arm, and the warm bath employed; cream of tartar solution used as common drink, and ten drops of tincture of digitalis, taken three times a day in a glass of the imperial, of thin acidulated gruel. If these means do not afford relief, and the pulse continue full and firm, and the patient feel an increased oppression of the chest, and an inability to lie in any position, then the bleeding and bathing should be repeated, and the cream of tartar drink freely used, together with a pint of the compound decoction of broom daily. Should the cream of tartar not act sufficiently on the bowels, two scruples of the compound powders of jalap may be given. In many cases it may be necessary to repeat the bleeding and bathing three or four times. The skin should be well dried on coming out of the bath, and a clean flannel shirt put on over a thin cotton one, after every immersion. As these cases are generally induced by long exposure to wet, and hard labour, and afterwards sitting or remaining in wet clothes, they frequently occur in the young or stout out-door or agricultural and horticultural working classes. The previous treatment is often very successful. Care, however, must be taken not to carry debilitating means too far, and as soon as the pulse becomes natural, and the swelling begins to give way, a nourishing diet, with an occasional glass of gin

punch may be taken, and on every other day a dose of castor oil and turpentine to keep the bowels in regular order, and the system restored to its wonted vigour by animal food and four grains of sulphate of quinine, dissolved in ten drops of elixir of vitriol, and a wine glass of cold water, taken three times a day. In addition to the varieties we have named, there are other cases arising from, or the sequel of, scarlet fever, and other febrile affections. Where anasarca is the sequel of scarlatina, it is most frequently met with in young persons, as no test of the urine discovers disease in the kidney, nor does the stethoscope indicate any affection of the heart. The disease, in such subjects, very speedily progresses, till the face, and especially the eye lids, are distended with fluid, and are often opened with difficulty. Another very prominent symptom, especially in young boys, is the quick and immense distension of the scrotum and pressure, which indeed occurs in the other varieties, but not to such an extent as in this.

The treatment of the disease, in such subjects, is sometimes attended with difficulties, and at other times of so mild a character, that it disappears in the course of two weeks, without the employment of any active means. When a vapour bath can be procured, its daily use for a week will often subdue the disease. See *Vapour Bath.* In cases where the scrotum, (or purse, as it is sometimes called, or in plainer language, the pouch in which the testicles are contained,) is greatly distended with fluid, and as transparent as a thin bladder filled with water, we have no hesitation in recommending puncturing to the depth of three lines of an inch, with a needle, or the point of a clean, new, sharp lancet. The patient should recline in bed, or if he stands or sits upright, the parts should be supported in a soft handkerchief. In this instance, the patients are younger, and where there is pain felt in any part of the abdomen or chest, blood-letting, according to the age and circumstances, may be had recourse to, and the same diet and drink as above directed in inflammatory cases. Previous to, or immediately after, bleeding, the following powder may be given, viz.:

Calomel and James's powder, each four grains.
Camphor, one grain.
Mix, and take in jelly, honey, or other suitable vehicle.

As it is not easy to persuade young patients to take the compound decoction of broom, a more agreeable and scarcely less efficacious medicine may be used in the quantity of from a half to a whole pint daily, viz., the decoction of dandelion, as directed in the article *Dandelion.* From five to seven drops of tincture of digitalis may be taken three times a day, in a wine glass of the imperial drink, but the dose must be regulated by the age and state of the patient. The directions given respecting the after treatment in the preceding inflammatory variety, are equally applicable in this case; but a nourishing diet and stimulating liquids should not be used till the swelling has nearly subsided.

Anasarca of the lower extremities frequently occurs in pregnant females. Diuretics in those cases is sometimes injurious. Reclining on a bed or sofa, and cooling diet, are the only means of alleviation till the birth of a child effects the cure. See *Pregnancy.* Indeed, every swelling that produces pressure on the lymphatics, in any quarter of the body, will produce an anasarcous swelling in proportion to the kind and extent of such pressure.

Iodine has of late been warmly recommended in almost every variety of this disease, but it is a remedy not to be trifled with. It has been, however, used with success, both externally and internally. An ointment is formed of ten grains of iodine, and a dram of the hydriodate of potass, mixed with an ounce of lard, and the size of a small horse bean of this ointment is rubbed in daily in the region of the liver, where disease is apprehended in that viscus, or over the belly, where ascites is combined with anasarca. The form in which the internal use of iodine is combined with its external application, is in that of solution. One grain of iodine, and eight grains of the hydriodate of potass, are dissolved in two pints of distilled water, which is used by the patient in divided doses in the course of a day. Indeed, from our own experience in the use of iodine—powerful and deceitful as it often is—we can apprehend no danger from using it in this form.

DROPSY OF THE ABDOMEN, OR ASCITES; consists of an effusion of serous fluid into the peritoneal cavity. This form of dropsy is divided into general ascites, where the swelling and fluctuation is equal over all the abdomen and encysted. Where the swelling is confined to one part of the abdomen, the fluid being circumscribed, from adhesions of the peritoneum having taken place, so as to enclose it in a kind of bag or cyst. The first variety of the disease is the most common. It is preceded by loss of appetite, dry skin, oppression at the chest, diminished secretion of urine, costiveness; the swelling usually commences first in the hypogastric region, and gradually extends over the whole abdomen, which becomes uniformly distended, elastic, and communicates to the touch a distinct feeling of fluctuation. As the swelling increases, the oppression and difficulty of breathing become worse, and the lower extremities become anasarcous. The symptoms of encysted abdominal dropsy are much of the same general character, but less rapid in progress, and the oppression at the chest, as well as most of the other symptoms, are less severe.

Causes. In addition to the general causes of dropsy, which we have mentioned under *Anasarca*, certain local affections, as disease of the liver, spleen, pancreas, and mesenteric glands, or chronic inflammation of the peritoneum, may also give rise to this affection. The favourable symptoms are, the urine being but little diminished, or becoming more copious, gentle perspiration commencing, and the oppression at the chest becoming less. The unfavourable symptoms are, previous organic disease, as disease of the liver, &c., previous intemperate habits, sympathetic fever, local pain, dry skin, scanty urine, and a tendency to coma.

Treatment. The general medical treatment is the same as that recommended in general dropsy, combined with stimulating frictions to the abdomen, and support by means of bandaging. Where these means fail, recourse must be had to the operation of tapping, or drawing off the fluid with a trocar and canula. In general dropsy of the abdomen, this is done in the following manner :—The bowels having been emptied by means of an injection containing turpentine, about an hour previously, and the bladder ascertained to be empty, a broad cotton or flannel bandage, split into two tails at each end, leaving about twelve or fourteen inches at the middle untouched, is then to be applied round the belly of the patient, the ends being crossed behind, and given in charge to two assistants to tighten them when requisite. A small hole is then cut in the forepart of the bandage, corresponding to the point to be punctured, which should be in the central line of the abdomen, about midway between the navel and the symphisis pubis, but rather nearer the navel than otherwise. A large sharp trocar is then pushed on towards the collection of fluid, and when it is felt to enter it, the canula is pushed forwards, and the trocar withdrawn ; and as the fluid passes off, the assistants are directed to tighten the bandage. Care should be taken not to let the water run off too rapidly, as the effect so produced might give rise to fainting. When all the fluid is drawn off, the bandage should be permanently tightened, and a bit of lint spread with simple ointment placed over the wound ; and a small opiate administered, as ten or fifteen drops of Battley's solution of opium, combined with ten drops of ipecacuan wine; and the diet should be light and nourishing. After some days, frictions with camphorated spirit and hartshorn should be used, and constitutional remedies employed to improve the general health, and prevent a return of the effusion.

DROWNING. Under this head we mean to point out the means to be employed in the resuscitation of persons apparently drowned. Death from drowning is caused by the lungs being prevented from receiving the atmospheric air, which is necessary for the performance of respiration; in other words, the person is in a state of asphyxia, or suffocated, and therefore the restoration of this function is the principal indication of the treatment. As in all cases of accidents, where promptitude in action is required, nothing is more likely to confuse the mind than multiplicity of directions, or varieties in the method of treatment, we shall confine ourselves, in the present instance, to stating, as briefly and succinctly as possible, the principal remedial measures to be employed in cases of apparent death from drowning, merely premising, that we trust it is scarcely necessary now to warn persons against the practices of rolling the body, hanging it up by the heels, and others equally absurd and pernicious, which were formally in use.

Rules to be observed for the recovery of persons apparently drowned. 1. The body should be removed with all possible speed to the nearest house, (unless that be at a considerable distance), and after being stripped and dried, it should be placed in bed between blankets, the head being a little raised, whilst hot bottles or bricks are being got ready to apply to the feet and abdomen; artificial respiration should be commenced, and is to be done as follows: after clearing away with the finger any frothy mucus which may be lodging at the back part of the mouth, introduce the pipe of a pair of bellows into one nostril, keeping the other nostril and mouth closed; then whilst another person presses gently over the epigastrium to prevent the stomach being distended with air; inflate the lungs gently and slowly, till the breast be a little raised; the mouth and nostrils must then be left free, and the chest pressed gently in imitation of natural breathing, and then the same process should be repeated, and continued at least for fifteen minutes, if resuscitation does not take place before that time, or until a medical man arrives with proper apparatus. At the same time that this is doing, sinapisms should be applied to the abdomen, and frictions with hartshorn to the chest, and an injection containing turpentine, or composed of hot water and spirits, should be administered. Injections of tobacco smoke should never be used, for they deprive the patient of any chance of recovery, from the depression which they produce. Snuff or hartshorn applied to the nostrils are sometimes of use in stimulating the organs of respiration. When signs of returning animation begin to appear, such as sighing, beating of the heart, or gasping, a tea spoonful of warm brandy and water may be offered, to try if the power of swallowing be returned, but no attempt should be made to force it down the throat. Early bleeding in cases of submersion is now exploded from practice, being very often followed by fatal effects; but after reaction has come on, and

when a degree of fever sets in, accompanied by a feeling of oppression and constriction at the chest, and inability to draw a full breath, and sense of weight and throbbing in the head, blood-letting should be had recourse to, followed by other antiphlogistic treatment. The same means for procuring resuscitation are also applicable in other cases of asphyxia, as in apparent death from foul air, hanging, &c. but in cases of hanging, a little blood should be drawn from the jugular vein to relieve the congested state of vessels of the head. See *Carbonic Acid.*

DRUGS, Adulteration of. If the public knew nothing more of the fraud and villany which is practised in the drug trade, but what was proved before the medical committee of the House of Commons in 1834, it certainly were sufficient to inspire them with distrust. It must be obvious to the meanest capacity, that the most ample acquaintance with science, and the greatest judgment in practice, are of no avail, if adulterated or inefficient remedies are substituted for those ordered in prescriptions. It is really deplorable to reflect, that in a case of danger, the medical attendant feels in his breast that he cannot depend on the genuineness of the medicine he prescribes. This, however, is too frequently the melancholy fact. If a physician or surgeon recommend some house where pure medicines may be obtained, he is accused for having made a contract with the proprietor of the shop for a per centage of the profits; and this is the case specially in London, and some other cities and great towns. That man is, however, unworthy the name of a physician, who will permit any such paltry reflection to prevent him from doing justice to his patient, and even his own character. It has long been our opinion, that practitioners of every description should select the drugs they prescribe; and in so far as is practicable, see their prescriptions prepared under their own eye, or have one or more shops in the neighbourhood, on the purity of whose drugs and chemicals they can place the most implicit confidence. Charity would induce us to believe that the number of unprincipled medicine venders are comparatively few; but when they are once discovered, a concealment of their character and conduct is a serious crime against society. In the course of this work, the characters by which pure drugs may be distinguished, have been pointed out; and when an article is required, it would be well to consult the description before the drug is purchased.

DRUNKENNESS. See *Intoxication.*

DRYING OF HERBS AND VEGETABLE SUBSTANCES. The three Colleges have given somewhat similar directions for the drying of vegetable substances, and we therefore quote those of the Edinburgh College: 'Herbs and flowers are to be dried by the gentle heat of a stove or common fire, in such quantities only at a time, that the process may be finished as quickly as possible, for by this means their powers are best preserved, the test of which is the preservation of their natural colour.'

The leaves of hemlock and of other plants containing a subtile volatile matter, must be reduced to powder immediately after being dried, and afterwards kept in opaque or dark phials, well corked. The root of the squill, after having removed its external coat, is to be previously cut transversely into thin slices. The sign of its being properly dried is, that although rendered friable, it retains its bitterness and acrimony. It should always be remembered, that the admission of light to vegetable powders, destroys their efficacy; they should, therefore, be kept in opaque bottles. The top of a baker's oven is a very good place for drying herbs. They may be hung up there in baskets of peeled willow, carefully covered up with thin paper to exclude dust; and they will in general be found sufficiently dried in twenty-four hours. After they are dried, they may be preserved in a dry place, in thick paper, bags, or tin canisters.

DUODENUM. In the article *Abdomen*, we have given a short description of the duodenum. It may therefore suffice here to state, that the first portion of the small intestines is so called, because it was supposed not to exceed the breadth of twelve fingers, and hence the name given by the ancient anatomists, derived from *duodenis*, consisting of twelve. As the ancients only dissected brutes, farther investigations exposed their error, as it related to man; but the term is still retained, and is as good, if not better, than some others of more recent origin. See *Abdomen*, &c.

DYSENTERY is a disease characterized by frequent mucous or bloody dejections or stools, the proper fæces being for the most part retained, while the patient suffers from griping pains and tenismus, or a frequent desire of going to stool; and the fæces discharged on these occasions are sometimes discharged in the form of rounded masses, called scybalæ. Dysentery most generally prevails in the same situations as the intermittent fever, and these circumstances would lead us to suppose that the existing cause or causes were somewhat similar. Although, however, many speculations have been formed concerning its nature, and the way in which it is generated by autumnal fogs and marsh effluvia, they do not appear to us in any respect satisfactory. The disease has been supposed to be sometimes produced by certain peculiarities of diet, and we have no doubt this is occasionally the case; but we apprehend it is by no means so very general a cause as has been apprehended;

and with respect to the use of recent or fresh ripe fruits, if used in moderation, we conceive that they would rather tend to prevent the disease. It has been generally supposed, too, that dysentery is contagious, but we confess that we are inclined to adopt the opinion of Dr Bostock, and consider the mode of its propagation 'more resembling that of a complaint attacking a number of individuals all exposed to the same exciting cause.'

It is often combined with typhus, and it is said that when the fever is communicated by infection, the dysenteric symptoms are so likewise. Generally the most violent forms of the disease occur in warm climates, and in situations where the body is exposed to extreme alterations of heat and cold, so as to have given rise to the idea that it has some connection with the state of cutaneous perspiration. Many circumstances both with respect to the cause and the treatment of the disease, favour this opinion of the connection, although it is not easy to give any intelligible account of the mode of its operation. Indeed, the hypotheses that have been formed on this subject are little more than mere expressions of the fact in technical language, or have consisted in assuming the very point that was to be proved. We have no doubt, however, of the intimate connection that obtains, and the sympathy that exists, between the healthy action of the cutaneous vessels, or the discharge by the skin, and the healthy or unhealthy state of the abdominal, we will even add, thoracic viscera.

Dysentery may be considered as an inflammation of the great intestine, and in many cases the epidemic disease of the large intestine occurs under one of two conditions, either as secondary to typhus fever, or with an extension of the inflammatory process into the small intestines. The doctrine formerly held, and still acted on, by some practitioners was, that dysentery was the result of an irritation caused by the presence of round lumps of hardened fæces in the bowels, and the indication of cure was to attempt their removal by purgatives. Although this is a very frequent cause of dysentery, particularly in this country, still it is by no means so common as was formerly supposed; and, therefore, purgatives ought to be used with great caution, as they may aggravate, instead of relieving the disease; and the use of bland enemata to clear out the fæces from the large intestine, is decidedly preferable.

Medical writers are now unanimous in recommending the employment of the lancet in all cases of acute inflammation, and acute dysentery is one of those cases in which general bleeding seems to produce the best effects. Let it, however, be recollected, that it is of the disease, as it appears in Great Britain and Ireland, that we are now treating, and not of the dysentery of hot climates. Dr Cheyne, who had the charge of the Hardwich hospital, in 1818, when epidemic dysentery occurred in Ireland, states, that in this disease the most decided relief resulted from the use of the lancet: 'He says that in several cases in which there were excessive pain and tormina, and in which nothing was passed for several days but mucus and blood, as soon as venesection had been performed the patients became comparatively easy, and passed large quantities of feculent matter; and, moreover, states that his experience led him to conclude that this disease was best treated by the lancet.' Dr Macintosh says that laxatives will act with the best effect when blood-letting has been premised. In the young and plethoric, general blood-letting may certainly be resorted to with wonderful advantage; but in cases where general bleeding is inadmissable, and where leeches are to be procured, we prefer the following mode of procedure:—From eighteen to thirty leeches, or even more, are to be applied on the abdomen, near and below the navel. When the leeches drop off, the patient is to be put in a warm bath, and a person employed with a soft sponge to use gentle friction on the leech bites below the water, while the patient is in the bath. The patient is then to be well dried and put to bed, and the leech bites properly dressed. An enema, consisting of from two to four ounces of linseed tea, thickened with starch and forty drops of laudanum, is to be administered, and, if possible, retained, and if retained only for half an hour, great relief will be obtained. At the same time or immediately after the enema has been administered, an infusion of one dram of senna, one of rhubarb, and the same quantity of bruised coriander seeds and cinnamon bark, in six ounces of boiling water, and sweetened with sugar, is to be given the patient. This infusion may be prepared while the leeches, bath, &c. are using, and if retained, it will, after the previous means, produce a most favourable action on the bowels. Where the state of the patient will permit, great good may be derived from applying five or six leeches around the anus, but such is often the degree of restlessness and uneasiness, that this can seldom be effected.

If the enema has been returned before it could possibly afford any relief, and if the infusion of senna and rhubarb has likewise been thrown off, let no time be lost in giving the patient two of the following pills every hour, till relief is obtained:—

Take of the mass of the Mercurial pill, fifteen grains.
—— —— Dover's powder, thirty grains.
Make into a mass with simple syrup, and divide into ten equal pills.

This last prescription we have known to effect astonishing results when the stomach retained the medicine, and in numerous cases the disease

has yielded to it alone, without any other prescription whatever. These pills may be followed by a small dose of castor oil next morning. Let it be remembered, that the above remarks on the treatment of dysentery, chiefly apply to the disease as it exists in our own country.

Dysentery, as it occurs in India and other warm climates. The patient generally feels languid, and is relaxed in his bowels for a day or two previous to the attack; the evacuations then become scanty, consisting principally of a little bloody mucus, and are accompanied by great straining whilst at stool; at the same time there supervenes pain in the umbilical region, and the nature of this pain differs, in some cases being fixed and burning, in others acute, and occurring in violent paroxysms. The skin is hot, dry, and harsh; the pulse varies considerably, in the generality of cases it is full and quick, whilst in some it is at first but little altered. The tongue is foul and loaded with a yellowish fur in the centre, whilst the tip and edges are red and glazed. As the disease proceeds, the evacuations become either clear and colourless, like rice water, or of a dirty and somewhat reddish appearance, like the washings of raw flesh. In either case the smell is exceedingly offensive, and there is no trace of bile to be found in the evacuations.

The remedies which are found most useful in this form of the disease are, bleeding generally and locally at the commencement, counter-irritation by sinapisms, warmth applied to the abdomen, mercurials combined with opiates, such as Dover's powder and calomel, or hyosciamus and calomel, and anodyne enemata. With regard to the mercurial treatment, whatever may be the cause of the doubtful repute in which it is held by many in this country, there can be but little difference of opinion regarding its efficacy in the acute form of dysentery in India. The usual form of prescribing it is calomel, in large doses, (from ten grains to a scruple), combined with six or eight grains of Dover's powder, and one of extract of hyosciamus; one such bolus being given every three or four hours, till the stools become more natural. When given in this way, its first effects seem to be directly sedative, arresting or at least diminishing the pain and straining, and subsequently, by its action on the liver, it produces a healthy change in its secretion, and thereby in the character of the stools. At first, after the calomel has been given, the stools become of a dark grayish colour, which, according to the observations and experiments of Dr Annesley, would seem to depend on its peculiar action on the mucous membrane. Its subsequent action, in restoring the biliary secretion, is marked by the evacuations becoming of a light yellowish or sparkling green appearance, and of more natural smell; and this bilious appearance of the stools may be reckoned as one of the most favourable symptoms. In some severe cases, it is requisite to push the mercurial treatment the length of producing slight salivation, before the above mentioned effects are produced. The mercurials should always be followed by the use of bitter tonics, such as infusion of gentian, or Cherattah, or Columba root, which may be occasionally combined with some slight aperient, as the phosphate of soda, or the Rochelle salts. Astringents and opium alone ought never to be trusted to in the first stage of acute dysentery, as they only serve to mask the more prominent symptoms, without overcoming the diseased action, and are apt to throw the practitioner off his guard; in the subsequent stages, after the other remedies recommended have been employed, they are often useful.

Chronic Form of Indian Dysentery. This generally occurs in persons who have suffered either from the disease previously, or from liver complaint, and is often met with in this country in persons who have resided in India and other warm climates. As it occurs abroad, the symptoms are generally of a low, continued, and exhausting nature, which are characteristic of this form of the disease. The pain is constant and dull, generally referred either to the rectum or left iliac region; and there is in most cases tenderness in the region of the liver; the pulse is small and rapid, the skin of burning heat, and dry, the feet, however, are sometimes cold, and covered with clammy sweat, the evacuations from the bowels are scanty, and accompanied by straining and sickness, and are at first feculent, but of white chalky appearance. They soon become more frequent, and then consist of mucus and vitiated bile, at least the bile found in the gall bladder after death corresponds in appearance and colour with the evacuations during life, in many cases. As the disease progresses to an unfavourable termination, shreds of the mucous membrane, lymph, dark clotted blood, and purulent matter, are often passed by stool, and the evacuations generally have a putrid odour. Typhoid symptoms gradually supervene, such as cold sweats, low delirium, and coma. In other cases, the symptoms are less violent, and the disease slower in its progress, the patient dying gradually exhausted.

The treatment consists in the exhibition of diaphoretics and opiates, local depletion where there is much fixed pain, followed by the application of blisters or sinapisms, or in the less rapid form of the disease, friction, with antimonial ointment, and the use of mercurials, both externally and internally, unless the patient be much exhausted previously. Perhaps the best remedies in this intractable form of the disease, are, Dover's powders, in doses of five grains, three times a day; sugar of lead and opium, or the sulphate of zinc and opium, in doses of one

or two grains of the sugar of lead or sulphate of zinc to one grain of the opium, given twice a day; or a pill composed of one half grain of opium, one half grain of ipecacuan, and one grain of extract of henbane, twice or thrice a day. Either of the above may be exhibited as directed, together with an occasional dose of castor oil, or a small tea spoonful of balsam of capivi. Warm bottles should be applied to the abdomen; and small starch injections, containing from forty to sixty drops of laudanum, administered at bed time, are often exceedingly beneficial.

The diet must be light and unstimulating, consisting of arrow root, diluted calf's foot jelly, in small quantities; or, what is better, jelly made from the Iceland or Caragheen moss, with a small proportion of milk, or where the stomach will bear it, small quantities of cold boiled milk, with lime water. The drinks should be bland and mucilaginous, and in small quantities at a time. All acids or substances which are apt to produce acidity, should be carefully avoided. During convalescence, great attention to the state of the bowels and digestive organs is requisite; and proper warm clothing, particularly the use of a flannel bandage round the abdomen, ought to be insisted on.

DYSMENORRHÆA. Difficult or painful menstruation. See *Menstruation*.

DYSPEPSIA. This term has become English, and is too familiar to the ears of many of those who are incapable of tracing its Greek derivation. Its meaning is, however, neither more nor less than indigestion, and under that head we have endeavoured to tender dyspeptics some wholesome advice. Dyspepsia is a convenient term, both for the physician and the patient. The former, when asked what is the disease, replies, only dyspepsia, and the patient confirms the assertion by protesting that they have not used an ounce of solid food for weeks; and, moreover, it is not only a fashionable term, but likewise a fashionable disease, and that too of a more serious nature than many imagine.

DYSPNÆA. Difficult breathing, attended with a feeling of suffocation. See *Asthma*, &c.

DYSURY, OR DYSURIA. This troublesome disease may be defined a difficulty in discharging the urine, sometimes attended with a suppression of that evacuation. When there is a total suppression, the disease is called ischuria; a partial suppression, dysuria; and in this latter case, the urine may be hot or otherwise. When the urine passes off by drops, and very small quantities, and when there are frequent painful and uneasy urgings to discharge the urine, and when in the male there is in addition to these symptoms, continued erection of the penis, the disease is called stranguary, which is frequently occasioned by the application of blisters. See *Stranguary*. When the urine passes with difficulty, and a sense of pain or heat attends the discharge, it is called heat of the urine.

Dr Cullen enumerates six species of the disease. 1. *D. Ardens*, or a sense of heat, without any manifest disorder of the bladder. 2. *D. Spasmodica*, from spasm. 3. *D. Compressiones*, from a compression of the neighbouring parts. 4. *D. Phlogistica*, from violent inflammation. 5. *D. Calculosa*, from stone in the bladder. 6. *D. Mucosa*, from an abundant secretion of mucus. Various causes give rise to these diseases, such as inflammation of the urethra, occasioned either by venereal sores, acrid injections, frequently employed by quacks and ignorant persons for the cure of gonorrhæa, tumour, ulcer of the prostate gland, or neck of the bladder, inflammation of the kidneys or bladder, enlargements of the hæmorrhoidal veins, a lodgment of indurated or hardened fæces in the rectum, spasm at the neck of the bladder, the absorption of cantharides applied externally, or taken internally; and here we warn the foolish and ignorant, who sometimes, for an ill-timed frolic, administer tincture of cantharides, often endangering the life of their victim. Excess in drinking either spirituous or vinous liquors, and omitting duly to evacuate the urine, is a frequent cause; as is gravel lodging at the neck of the bladder, or in the urethra, and thereby producing irritation at the neck of the bladder. A frequent inclination to make water, with a smarting pain, heat, and difficulty in avoiding it, together with a sense of fullness in the region of the bladder, are among the most characteristic symptoms of dysury. According to the cause which has given rise to it, however, the symptoms often vary. When, from a calculus in the kidney or ureter, besides the affections mentioned, it will be accompanied with nausea, vomiting, and acute pains in the loins and region of the ureter and kidney of the side affected, and in some cases both kidneys are diseased. Stone in the bladder or urethra being the cause, an acute pain will be felt at the end of the penis, particularly in voiding the last drops of urine, and the stream of water will either be divided into two, or be discharged in a twisted manner, not unlike a cork screw. Enlargement of the prostate gland, or neck of the bladder, has occasioned the suppression or difficulty of urine; and when this is the case, by introducing the finger into the bowel, a hard tumour may readily be felt, or even by passing back the finger externally, a little anterior to the anus. With respect to the treatment, we would only be repeating what has been said under the various diseases and affections connected with, or either directly or more remotely giving rise to dysury, were we to enter into detail. By consulting the articles *Blistering Fly, Gonorrhea, Urinary Calculi, Urinary Organs*, the means of prevention, alleviation or cure will be found.

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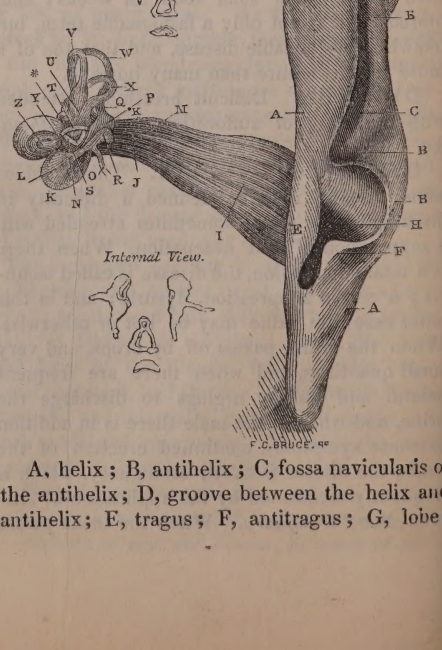
EAR (*auris*). The ear is the organ of hearing. It is situated at the side of the head, and is divided into external and internal ear. The *auricula*, or *pinna*, commonly called the *ear*, constitutes the external part. It is of a greater or lesser size, according to the individual. The pinna is formed of a fibrous cartilage, elastic and pliant: the skin which covers it is thin and dry. There are also seen, upon the different projections of the cartilaginous ear, certain muscular fibres, to which the name of *muscles* has been given. The pinna, receiving many vessels and nerves, is very sensible, and easily becomes red. It is fixed to the head by the cellular tissue, and by muscles, which are called, according to their position, *anterior*, *superior* and *posterior*. These muscles are much developed in many animals: in man, they may be considered as simple vestiges. The *meatus auditorius*, or auditory passage, extends form the concha to the membrane of the tympanum; its length, variable according to age, is from ten to twelve lines in the adult; it is narrower in the middle than at the ends; it presents a slight curve above and in front. Its external orifice is commonly covered with hairs, like the entrance to the other cavities. The middle ear comprehends the cavity of the tympanum, the little bones which are contained in this cavity, the mastoid cells, the Eustachian tube, &c. The tympanum is a cavity which separates the external from the internal ear. Its form is that of a portion of a cylinder, but a little irregular. The external side presents the *membrana tympani*. This membrane is directed obliquely downward and inward; it is bent, very slender and transparent, covered on the outside by a continuation of the skin; on the inside, by the delicate membrane which covers the tympanum. Its tissue is dry, brittle, and has nothing analogous in the animal economy; there are neither fibres, vessels, nor nerves found in it. The cavity of the tympanum, and all the canals which end there, are covered with a very delicate mucous membrane: this cavity, which is always full of air, contains, besides, four small bones (the *malleus*, *incus*, *os orbiculare*, and *stapes*), which form a chain from the *membrana tympani* to the *fenestra ovalis*, where the base of the *stapes* is fixed. There are some little muscles for the purpose of moving this osseous chain, and so stretching and slackening the membranes to which it is attached: thus the internal muscle of the *malleus* draws it forward, bends the chain in this direction, and stretches the membranes; the anterior muscle produces the contrary effect: it is also supposed that the small muscle which is placed in the pyramid, and which is attached to the neck of the *stapes*, may give a slight tension to the chain, in drawing it towards itself. The internal ear, or labyrinth, is composed of the cochlea, of the semicircular canals, and of the vestibule. The *cochlea* is a bony cavity, in form of a spiral shell, from which it has taken its name. This cavity is divided into two others, which are distinguished into external and internal. The partition which separates them is a plate set edgeways, and which, in its whole length, is partly bony and partly membranous. The semicircular canals are three cylindrical cavities, bent in a semicircular form, two of which are disposed horizontally, and the other vertically. These canals terminate by their extremities in the vestibule. They contain bodies of a gray colour, the extremities of which are terminated by swellings. The vestibule is the central cavity, the point of union of all the others. It communicates with the tympanum, the cochlea, the semicircular canals, and the internal *meatus auditorius*, by a great number of little openings. The cavities of the internal ear are entirely hollowed out of the hardest part of the temporal bone: they are covered with an extremely thin membrane, and are full of a very thin and limpid fluid: they contain, besides, the acoustic nerve. The internal ear and middle ear are traversed by several nervous threads, the presence of which is, perhaps, useful to hearing.



A, helix; B, antihelix; C, fossa navicularis of the antihelix; D, groove between the helix and antihelix; E, tragus; F, antitragus; G, lobe;

H, concha; I, cartilaginous portion of the auditory canal; J, osseous portion of the auditory canal; K, internal extremity of the auditory canal, closed by L, the membrana tympani, the internal or convex surface of which is here seen, the walls of the tympanum being removed; M, head of the malleus; N, handle of the malleus, between the camina of the membrana tympani; O, processus gracilis of the malleus; P, body of the incus; Q, short crus of the incus; R, long crus of the incus, articulating with S, the os orbiculare; T, stapes, its base applied against the fenestra ovalis; U, vestibule of the labyrinth; V, anterior semicircular canal; W, posterior semicircular canal; X, external semicircular canal; Y, beginning of the cochlea; Z, end of the cochlea; * aqueduct of Fallopius.

EAR, Diseases of. From the preceding anatomical description and cut, illustrative of the structure of the ear, the general reader will be better prepared to understand what is stated respecting the diseases of that important organ.

The Ear Ache. This is perhaps the most common affection of the ear that comes under the notice of the domestic practitioner. It proceeds from inflammation of the auditory passage, which often extends itself to and beyond the tympanum or drum of the ear, and frequently terminates in suppuration, and the worst suppurations of this organ are those that occur in scrofulous children, in whom they are frequently accompanied by disease of the bony parts of the organ, and sometimes even followed by necrosis or mortification and separation of the bone. Suppuration within the ear may not only cause these consequences, and more or less complete deafness, but extend their effects to the dura mater or covering of the brain, and destroy the patient.

Ear ache is easily known by acute pain in the organ, with severe shooting in the cavity, and the adjoining parts. There are some individuals subject to a chronic ear ache, which is easily distinguished from that of acute inflammation, which, if not prevented, often terminates in suppuration. In this latter case, the pain is not so severe, nor the shooting and darting sensation so distinctly felt, and the pain generally abates by holding the ear over the steam of warm water, or in some other way applying warmth externally, bathing the feet, and taking some mild diaphoretic medicine, such as six or ten grains of Dover's powder, at bed time.

The treatment of ear ache, or more properly, acute inflammation of the ear, ought, however, to be more particularly attended to, and should be rigorously antiphlogistic. In adults, copious venesection should be resorted to, and in children leeches. Besides these means, fomentations and purgatives, followed by blisters behind the ears, are also requisite. When the inflammatory action abates, and suppuration has commenced, which will be known from the continuance of the pain, which will be, however, somewhat duller, but the patient will find the pulsating of suppurative process going on. Large warm poultices, put in a thin lena or mule muslin bag, should be applied externally. When the abscess bursts, the matter will be discharged by the external passage, and the ear should be as speedily cleared of the matter as possible, by daily and gently syringing it with warm milk and water. If after the reduction of the inflammation, the discharge of the matter should continue, and the patient appear to be scrofulous, alterative medicines should be employed, such as those recommended in that disease; and the ear may be injected daily by a very weak solution of the nitrate of silver, say half a grain to one ounce of rose water. If diseased bone be present, of course the discharge will not cease till exfoliation or separation of the dead bone is completed.

The next most frequent affection of the ear is *hardened wax*, by which the meatus auditorius is frequently blocked up, and the external side of membrana tympani, or membrane of the drum of the ear, covered with hard dry masses of cerumen or wax, so as to render the patient entirely deaf. Such hardened pellets of wax, if neglected, may ultimately cause a great deal of irritation, followed by inflammation and ulceration of the membrane of the tympanum, and lining of the passage; and they always give rise to a sensation of false confused sounds in the ear, which are truly distressing to the patient.

The treatment or cure consists in washing out the meatus auditorius or passage by means of a syringe capable of holding about four ounces of warm water. Abernethy's ear syringe, or the common four ounce syringe, used for administering enemas to children, will answer the purpose very well. A less instrument will, however, succeed in ordinary cases. The injection of warm water should be thrown into the passage, so as to make it reguritate with considerable rapidity. This operation will generally have to be performed several times in very obstinate cases, before the pellets of wax are loose enough to be washed out. A few days previous to using the injection, ten or twelve drops of a mixture of equal parts of fresh ox gall, or even sheep gall and olive oil, may be dropped into the ear at bed time, and retained by a plug of cotton or wool in the external opening. After the ear has been cleared of the hardened wax, a few drops of the above mixture may be used every other night, and the ear gently washed out with a small syringe and warm water, every ten or twelve days.

The auditory tube, or meatus auditorius, is occasionally the seat of polypi and other excrescences. When these are situated near the ex-

ternal opening, and no surgeon within reach, they may be taken hold of by a hook, and cut away by a pair of very fine sharp scissors; and when this is done, a camel hair brush, moistened with the muriated tincture of iron, may be applied to the wound, or it may be touched with lunar caustic. Where they are more difficult to reach, it is best to extract them with forceps, and apply either the tincture or lunar caustic, as in the former case, to the parts to which they adhered.

Insects and other extraneous or foreign substances sometimes get into the ear, and frequently occasion great trouble and uneasiness. The best plan is at once to take them out with a pair of forceps, if they can be seen. If not, a piece of surgeon's lint or cotton, dipped in thin honey or oil, and put on the end of a probe or crow quill, may be employed. These, on account of their adhesiveness, will entangle any small insect, and bring it out. Or the mixture of oil and gall, above noticed, may be dropped into the ear. Which ever method is employed, the ear should be well syringed out with warm water. This last plan is perhaps the best, not only for insects, but for the removal of peas, small pebbles, &c., especially when a large syringe is used, as the regurgitation of the liquid quickly brings them out when all other means fail.

In addition to the causes of deafness already stated, there are more internal, and less easily discovered causes from which deafness may proceed. It may arise from obstruction of the Eustachian tube, (the tube by which the air passes to the tympanum from the mouth), by mucus, as happens in severe catarrh or cold, or by the presence of a tumour, as is sometimes exemplified in cases of polypi, or swelled tonsils, or as one of the effects of syphilitic ulceration, or sloughing sore throats. A consideration of these affections, would, however, be out of place in a work of this kind. We may, however, remark, that for the removal of deafness, caused by permanent obstruction of the Eustachian tube, Sir A. Cooper suggested the practice of making a small puncture in the anterior and inferior part of the membrane of the tympanum; a method which has been attended with a degree of success, but which should not be done without mature deliberation, and by a skilful surgeon, as there are only particular cases to which it is applicable.

With respect to the apparatus composing the internal ear, and the diseases with which they are affected in general, they baffle all professional skill. Indeed, every kind of deafness, from malformation of the labyrinth of the ear, must be set down as incurable. Nervous deafness may be treated like every other nervous affection, on constitutional principles; but cases of long standing are hopeless. There is one comfort for the deaf, however, that the ear is not so sympathetic as the eye, and some other organs; and although one ear may be diseased, the patient can hear with the other.

EAU DE LUCE. This preparation is a compound succinate of ammonia. It is much esteemed as a stimulant and nervine medicine, and is employed internally and externally against spinas, hysteria, syncope or fainting, vertigo or dizziness, and the stings of insects. When used internally, the dose is from ten drops to half a fluid dram, in a wine glass of cold water. It is known in the pharmacopeias by the name of the succinated spirit of ammonia, which was first introduced as a substitute for the real eau de luce, but had not, however, its usual milky appearance. This is given in the following formula, by the addition of the mastick, the resinous matter of which is separated by the water, but is retained in a state of suspension, probably by the action of the alkali. Mr Phillips, however, asserts, that the original eau de luce contains no oil of amber, and the following formula would be more agreeable without the odour of that oil. We give its composition as ordered by the colleges, and our readers may or may not omit the oil of amber as they please:

Eau de Luce, or *Succinated Spirit of Ammonia.*

Mastick, three drams.
Rectified spirit, nine fluid drams.
Oil of lavender, fourteen drops.
Oil of amber, four drops.
Water of ammonia, ten fluid drops.

Macerate the mastick in the spirit, so that it may be dissolved, and pour off the clear solution. Add to this the other ingredients, and mix them all by agitation or shaking the bottle.

This is certainly a useful and economical domestic medicine, as it may be procured at one tenth the price for which the foreign eau de luce used to be sold.

ECCHYMOSIS. The black or bluish appearance caused by the extravasation of blood into the surrounding tissue, as seen after bruises, blows, and other accidents.

ECTROPIUM; a disease of the eyelid, in which it is turned outwards. See *Eye, Diseases of the, and its Appendages.*

ECZEMA; a disease of the skin, marked by an eruption of small vesicles, preceded by redness, heat, and itching of the part, afterwards the minute vesicles burst, and discharge a thin acrid fluid, which often gives rise to excoriation. The most severe form of this disease arises from the effects of mercury on the system, but it is likewise caused from exposure of the skin to irritating substances. It frequently occurs on the hands of grocers, from working amongst raw sugars, and is then named 'grocer's itch.' It likewise occurs amongst masons, bricklayers, and others, from the effects of the lime on the skin. Except when arising from mercury, it is seldom accompanied by any constitutional symptoms.

The best treatment is frequently bathing the

part in tepid water, emollient poultices to the parts. The internal use of gentle laxatives and alteratives, sarsaparilla, diet drink, &c. and avoiding all greasy applications.

EDUCATION OF CHILDREN. Although perhaps this does not exactly belong to the province of the physician, still, from the effects which the mode of educating a child produce on its physical condition, we may be excused for briefly adverting to this subject; and the best manner in which we can do so, will be by quoting the following remarks and reasonings of Dr Brigham, of Connecticut, in America:—

'I beseech parents,' says this elegant writer, 'to pause before they attempt to make prodigies of their own children. Though they may not destroy them by the measures they adopt to effect this purpose, yet they will surely enfeeble their bodies, and greatly dispose them to nervous affections. Early mental excitement will serve only to bring forth beautiful but premature flowers, which are destined soon to wither away without producing fruit. Let parents not lament because their children do not exhibit uncommon powers of mind in early life, or because, compared with some other children, they are deficient in knowledge derived from books. Let them rather rejoice if their children reach the age of six or seven with well formed bodies, good health, and no vicious tendencies, though they be at the same time ignorant of every letter of the alphabet. If they are in this condition, it is not to be inferred that their minds are inferior to those of children who have been constantly instructed. It is a great mistake to suppose that children acquire no knowledge while engaged in voluntary play and amusements. They then do acquire knowledge as important as is ever acquired at school, and acquire it with equal rapidity. Many think that the child who has spent the day in constructing his little dam and his little mill in the brook or the stream that runs in the gutter, or in the rearing his house of clods of snow, or in making himself a sledge or cart, has been but idle, and deserves censure for a waste of his time, and a failure to learn any thing. But this is a great error of judgment, for while he has thus followed the dictates of nature, both his mind and body have been active, and been thereby improved. To him any thing which he sees, and hears, and feels, is new; and nature teaches him to examine the causes of his various sensations, and of the phenomena which he witnesses. For him the book of nature is the best book, and if he is permitted to go forth among the wonders of creation, he will gather instruction by the eye, the ear, and all his senses. He is for a while just as ignorant that stones are hard, that snow will melt, that ice is cold, that a fall from a tree will hurt him, and a thousand other common facts, as he is of a parallelogram, or the diameter of the sun, or the pericarpium of flowers, or of many other similar things, which some think it important for infants to know. If his time is constantly occupied in learning the test, he will grow up ignorant of many common truths, and fail in the best of all learning, common sense. The child, when left to himself, manifests a true philosophical spirit of inquiry. The story related of the celebrated Schiller, who, when a boy, was found in a tree, during a thunder storm, trying to find where the thunder and lightning came from, is an instance of the natural tendency of every child to self-education. This tendency it is highly important to encourage, for it involves the cultivation of that spirit of inquiry which is far more valuable than limited acquirements in knowledge—a spirit which teaches us to distinguish what is just in itself, from what is merely accredited by illustrious names; to adopt a truth which no one has sanctioned, and to reject an error of which all approve, with the same calmness as if no judgment were opposed to his own. But this spirit will never be acquired, when the child is taught from his infancy to depend upon others for all he knows, to learn all he does learn as a task, not from a desire of ascertaining the truth, and gratifying his curiosity. Let not the parent, therefore, regret, that his child has passed his early years out of school; for in all probability the knowledge he has gained while running and exercising in the open air at play, is more valuable than he would have gained at school. At all events, he has gained what is far, very far, more valuable than any mental acquirements which a child may make, viz., a sound body, well developed organs, senses that all have been perfected by exercise, and stamina which will enable him in future life to study or labour with energy, and without injury.'

We hope these remarks of Dr Brigham will excite many parents and others interested in the education of youth, to peruse his excellent little work on Physical Education, with the notes and illustrations of the lamented Dr M'Nish.

EFFERVESCENCE; the commotion produced in fluids by the rapid escape of gas, as seen in the familiar example of the soda powder, or on mixing vitriol and chalk; the acids in either case combining with alkali, whilst the carbonic acid is set suddenly free in the form of gas.

EFFERVESCING DRAUGHTS. These are made by dissolving some alkaline salt, generally either the carbonates of soda, ammonia, or potass, in a quantity of water, and then making a solution of tartaric or citric acid, sufficiently strong to neutralize the alkaline solution; and then mixing the separate solutions, and drinking whilst the mixture effervesces. They are used in fevers to allay thirst, and to promote perspiration; and cases of vomiting and

nausea, for the purpose of allaying the irritability of the stomach.

EGGS. The eggs of birds in general are composed of several distinct substances. Phosphate of lime, carbonate of lime, a small portion of gelatine and water, are the constituents of the shell, which is lined with a white and strong membrane, which is tough after being boiled, and possesses the usual character of animal substances. The white is albumen, and the yellow consists of an oil of the nature of fat oils, united with a portion of serum, and coagulable by heat. The different parts of the egg are employed in pharmacy and medicine. The calcined shell is esteemed as an absorbent, the oil is softening, and is used externally to burns and chaps. The yolk renders oil miscible with water, and is used for forming emulsions of castor, olive, almond, and other oils; and with the same view for incorporating resinous and other substances with watery fluids, such as gum, guiacum, balsam of copaiba, &c. Eggs swallowed raw, especially in the morning fasting, have likewise been greatly recommended as a remedy for jaundice, and affections of the liver and gall bladder. Eggs, as an article of diet, in their nature and properties are very intimately connected with milk. The white of the egg, as its name imports, and as has been already stated, consists almost entirely of albumen, and the yolk of an albuminous substance, united to a quantity of oil.

The fresh, soft, boiled eggs of our domestic poultry, and of many other birds, afford an excellent and most nutritious article of diet, and many persons, not otherwise remarkable for a vigorous digestion, can eat a great many eggs, not only with impunity, but with advantage—making a whole meal without scarcely any other admixture; others, on the contrary, would feel oppressed if they used more than one, or at most two, at a time. The eggs of some fowl, particularly the common duck, produce very disagreeable symptoms, such as colic, flatulence, and nausea in some individuals; but it is an incontrovertible fact, that the eggs of certain sea fowl do not at all partake of that fishy taste, which is so characteristic of the flesh of these fowl. Individuals should, therefore, in the use of eggs as an article of diet, be guided by their own experience. When tainted, they become oppressive to the stomach, producing symptoms somewhat similar to those induced by the poison of lead.

ELATERIUM. A substance obtained from the wild or squirling cucumber, having violent cathartic and hydragogue properties, and employed in dropsies, in doses of from half a grain to two grains, in combination with other medicines. It is seldom used in domestic practice, is very expensive, and not easily procured genuine. In the hands of an experienced practitioner, it frequently does great good, but it should not be tampered with in ordinary cases. The quantity of elaterium contained in the fruit of the cucumber is very small, being only six grains in forty cucumbers.

ELATRIATION; a term employed in chemistry and pharmacy to designate the action of pouring a liquor out of one vessel into another, in order to separate the subsiding matter from the clear and fluid part. It likewise means the process of washing, which carries off the lighter earthy parts, while the heavier subside to the bottom, and for this purpose there is of late some ingenious devices.

ELDER; *Sambucus Ebulus.* The only medicinal preparation of elder, now used in this country, is the water distilled from the flowers, which acquires their peculiar smell, and is sometimes used in the formation of lotions.

ELECAMPANE, OR MULA HELENIUM. About half a century ago the root of this plant was greatly celebrated not only as a domestic medicine, but was in no ordinary repute with the faculty, as an expectorant, diaphoretic, diuretic, and emenagogue. Though a native of Britain, it is seldom found growing wild, but is yet a favourite plant in cottage gardens, and we have frequently met with it in sheltered situations near the sea, on the west coast of Ireland. The root, which is the part employed medicinally, in its recent state, has a weaker and less grateful smell than when thoroughly dried and kept for a length of time, by which it is greatly improved in its odour. Although now out of fashion, we think we have seen good result from its use, by combining a scruple or half a dram of the powder with eight or ten grains of Dover's powder, in honey or jelly. It not only prevented the nausea produced by the latter medicine, but effected a more speedy and general perspiration, while its secondary action prevented the usual debility and langour, especially if taken during the day in one dram doses of the powder, without any Dover's powder, every three hours. In the chronic rheumatism of the aged, when taken in these doses in a wine glass of warm ginger tea, it will maintain a mild perspiration, and often very materially relieve the symptoms. In cough it may be combined with the Dover's powder, if taken at bed time in jelly or honey. The powder is the best form in which it can be used. Those who choose to use it in the form of an electuary, may mix one ounce of the powder with four or six ounces of honey, and take a spoonful occasionally. In modern practice it is seldom used, but as a cheap powder for preventing pills from sticking together, or as a vehicle for more active remedies.

ELECTRICITY. Under this head we merely intend mentioning briefly the effects of electricity when employed as a remedy in medical practice; for to consider it more fully would require more

room than can be well afforded in a work like the present, to any subject of general science, and as it may be found fully treated of in most of the popular cyclopædias, and in works on chemistry and natural philosophy. Electricity is employed as a remedial agent in the form of sparks or shocks communicated to the body by the electric sparks. The cases in which it has been principally used, are those in which there is a want of nervous action, or where debility exists, as in some cases of amaurosis, palsy, chronic rheumatism, and also in some diseases of the womb, accompanied with want of action, as in suppression or retention of the menses; and it has been found useful in cases of barrenness, by restoring the healthy action to the womb. It acts as a powerful excitant, and when applied in too large a quantity, or too concentrated, destroys life, as is seen in persons killed by lightning. From the excitement it produces, it is an improper remedy to employ where symptoms of acute inflammatory action are present.

ELECTUARY. A form of prescribing certain medicines, such as dry powders, by combining them with syrup, treacle, honey, &c., into a mass of such consistence that may not be too thick to be easily swallowed, nor so liquid as to allow the powders to separate, and so that the dose may be easily given off a tea spoon or point of a knife.

ELEPHANTIASIS. A disease common in the East and West Indies, and known also by the name of Barbadoes leg. The skin of the affected limb becomes rough and scaly, and enormously thickened and mis-shapen, so as to resemble the leg of an elephant, whence it has derived its name. It generally comes on with slight heat and pain in the part, accompanied with general fever; but in some cases it comes on very gradually, unattended with constitutional symptoms, but proving a burden to the patient from its unwieldy size. In the early stage, the use of laxatives and diaphoretics should be employed internally, together with frictions of iodine ointment to the part, and firm bandaging, so as to attempt to discuss the swelling. In the later stages of the disease little can be done, and in those cases attended with troublesome ulcerations, amputation has sometimes been found necessary, and is frequently urged by the patient.

ELEVATOR. This term is applied to those muscles whose action is to lift up or elevate the part to which they are attached; hence the term elevator muscles. It is likewise used to designate a surgical instrument, employed to raise depressed portions of the bones of the skull that may be pressing on the brain. There are many beautiful examples of the elevating power in many of the muscles of the human body, such as the elevator muscles of the eye, the mouth, the eye brows, the scapula, &c.

ELIXIR. This term has almost become obsolete with the faculty, but not so with the public, who are not so easily convinced of the propriety of changing the names of men and things as our modern medical chemists. There is now no class of preparations in any of our three national pharmacopeias designated elixir, but nothing is more common than to hear of the elixir of vitriol, paregoric elixir, the elixir of health, and even sacred elixir, &c. &c. The term was formerly applied by the profession to compositions similar to compound tinctures. Thus, the paregoric elixir is the compound tincture of camphor of the London College, and ammoniated tincture of opium of the Edinburgh, and elixir of vitriol is now called aromatic sulphuric acid. The sacred elixir is the tincture of rhubarb and aloes, and the elixir of health the compound tincture of senna.

ELM BARK, or the inner bark of the *Ulmus Campestris*, or common elm tree. The inner bark of this tree has been long celebrated for its tonic, diuretic, but especially its alterative virtues, and possesses a rather bitter, mucilaginous taste, without any perceptible smell. Elm bark has been extolled for its efficacy in the cure of lepra, and other cutaneous affections, when used in the form of decoction. The pharmacopeias order the decoction to be made by boiling four ounces of the bruised inner bark in four pints of water down to two pints, and straining the decoction while hot. The decoction, when properly prepared, has a faint odour, a slightly bitter taste, and a brown colour; and is taken in doses of from four ounces (a gill) to half a pint, twice or thrice a day. It is a great improvement to add two ounces of liquorice root along with the bark, or one ounce of the extract of liquorice, usually known by the names of liquorice ball in Ireland, black sugar in Scotland, and Italian or Spanish juice in England. The late Dr Lettsom and others assert its efficacy, while Willan and his adherents say that the cures said to have been effected by its use, have been chiefly, if not entirely, owing to the effect of the mercurial and antimonial remedies which have been used at the same time. It should, however, be recollected, that the elm bark procured from druggists is dry, and therefore almost totally useless. If, however, the decoction is prepared with the recent bark, experience warrants us to say, that it is a medicine of considerable efficacy in many obstinate cutaneous eruptions. We, however, prefer a compound decoction, made by boiling four ounces of the fresh tops of the juniper bark, (if the berries are on, so much the better), and two ounces of dandelion root, two of burdock root, cut small, and the same quantity of extract of liquorice, in small pieces, in two quarts of the simple decoction of elm, made as above directed, for half an hour on a slow clear fire, and strained while hot. From

the great quantity of mucilaginous matter contained in the elm bark, the simple decoction of double the strength may be used in nephritic affections; and if two ounces of wild carrot seed, or even the seed of the cultivated variety, are infused in two quarts of the hot elm decoction, the virtue of the medicine will be greatly increased. The simple decoction of the bark has been used as a wash in inflammatory affections of the eyes, and even applied as a covering to burns. Unless a small portion of spirit is added to the decoction, it must be prepared daily, and if kept more than one day, in a cool place. But in no case should the decoction be used older than three days even in winter, and one in summer.

EMBROCATION. A term in its modern application synonymous with liniment, or a fluid application to rub any part of the body with, and most generally applied to bruises, sprains, and chronic pains, and swellings of the joints. Embrocations and opodeldocs have long been favourite remedies with the quacks; and as it will save us much repetition, we here append a recipe for what in other parts of this volume we denominate

Simple Embrocation. Dissolve one dram of the oil of rosemary, and the same quantity of the oil of lavender, in one ounce of rectified spirit, and then add half a pint of common rum or whisky. Drop a few drops of this mixture on two drams of camphor, and then rub the camphor in a mortar till it falls into powder, which it will readily do after the spirit has been applied to it, and mix it with the spirit and oils. To these add one ounce of Castile or fine Windsor soap, finely shaved down, and shake the whole into a mixture. After it has stood two or three days, and been frequently shaken, it may be used. This is an excellent family medicine or embrocation for bruises and sprains; and when there is much pain, equal parts of the embrocation and laudanum will form it into an anodyne embrocation, which is a truly useful application in chronic rheumatism and stiff joints, as well as in bruises, contusions, and sprains, and does not cost more than two ounces of Steer's celebrated opodeldoc, and is more efficacious. The celebrated embrocation for the hooping cough, is only an addition of a third part of the oil of amber to the simple embrocation, with half an ounce, or even a whole ounce, (that is, to the proportion of half a pint,) of spirit of hartshorn, to the oil before it is mixed with the simple embrocation. It should be previously well shaken before it is added to the simple embrocation.

EMBRYO. This term is derived from a Greek word which signifies to bud forth, and is applied to the fœtus in the womb before the fifth month of pregnancy, or the period of quickening.

EMENAGOGUES. A class of substances which produce a peculiar action on the uterine system, and promote the flow of the menses. Some of the medicines of this class act remotely and indirectly, and others have a more immediate and well marked effect on the uterine organs. Some act by their stimulating qualities, others by irritation, and one class by their tonic, and another by their antispasmodic powers. The principal medicines of this class are mercurials, antimonials, savine, black hellebore, mustard seed, preparations of iron, cantharides, aloes, assafœtida, myrrh, madder, and electricity, or galvanism. The mode of using these will be found under their respective designations, and on the articles *Menstruation*, &c.

We may here be allowed to warn young and inexperienced females against the use of medicines of this class without advice; and especially those who resort to the use of powerful medicines to procure abortion, for in nine cases out of ten, they fail in producing the murderous effect; and if they do, they destroy both mother and child, and most frequently when the former is spared, it is with a diseased body and an uneasy mind that she lingers out the remainder of her life.

EMETICS. Those vegetable or mineral articles of the materia medica capable of exciting vomiting, independent of the quantity taken, or the smell and taste, nauseous or otherwise, of the substance itself, have been denominated emetics. The principal vegetable emetics are, ipecacuan, squills, camomile flowers, and mustard seed. There are other vegetable emetics, such as roots of violets, but very seldom employed, especially in domestic medicine. The mineral emetics are, emetic tartar, or tartarized antimony, and occasionally some of the other preparations of antimony are used as emetics; the sulphate of zinc or white vitriol, and the sulphate of copper. A description of these will be found in their proper places, and their doses and diseases in which they are used, under their respective heads of arrangement. The susceptibility of vomiting is very different in different individuals, and is often considerably varied by disease, and hence the variation of the dose, and even of the kind of emetic to be employed. The sulphate of zinc acts speedily, and is therefore employed in cases of poisoning. The secondary action of emetic tartar is debilitating, ipecacuan is less so, and from being less liable to produce irritation of the mucous membrane of the bowels, is preferable as an emetic for children.

EMETINE. The active principle of ipecacuan, having no smell, but a bitter, acrid taste, and forming transparent brownish red scales. It is resolved into carbonic acid, oil, and vinegar, at a heat somewhat above that of boiling water, and is soluble both in water and alcohol, but not in ether. It is employed as an emetic in the

same cases as ipecacuan, but its action is more violent, and consequently its use requires greater prudence. Half a grain acts as a powerful emetic, followed by sleep, but one-eighth of a grain is the usual dose. Six grains vomit violently, and produce stupor and death; and, on dissection, the lungs and intestines are found inflamed. There are now two kinds employed, viz., that above described, which is called the coloured or impure, and that which is freed from the colouring matter. This is a valuable acquisition to medicine, and when properly prepared, is by no means disagreeable. It is used in the form of syrup and lozenges, and combined with cough and emetic mixtures. See *Ipecacuan* for an account of its preparations.

EMOLLIENTS. A soothing class of medicines, whether externally or internally applied; indeed, the term is derived from the Latin word *emollio*, to soften. The articles usually denominated emollients are the warm and vapour baths, ointment, the lubricating, such as bland, oils, fat, and lard; and also the anodyne liniment, embrocations, &c., &c. See *Demulcents*.

EMPHYSEMA, OR WINDY SWELLING. This disease consists in a swelling caused by the escape of air into the cellular tissue. It is generally confined to one part, but in some cases spreads over the whole body, causing great swelling. Pressure on the emphysematous part gives rise to a peculiar crackling noise, and the swelling is elastic. When emphysema occurs in the chest, it is attended with difficult breathing and anxiety. The causes of emphysema are wounds of the lungs, and it sometimes arises spontaneously, or after violent exertions, or immediately after child-birth, &c.

The treatment consists in evacuating the air by scarifications into the cellular tissue, assisted by pressure with the hands. Difficult breathing, oppression, &c. are to be relieved by bleeding, gentle laxatives, &c.; and after the air has been evacuated, the uneasy feeling and stiffness resulting from previous distension, may be relieved by frictions with warm oil.

EMPIRIC. This name was applied to an ancient sect of medical practitioners who practised the healing art on experience, not theory, and this indeed is the true meaning of the term empiric. It is, however, now applied in a very opposite sense, to those who deviate from the line of conduct pursued by scientific and regular practitioners, and vend nostrums, or sound their own praise in the public papers. They are a very numerous class in the present day, and they more frequently have the name of quack than empiric applied to them. In fact the half, and even more, of the practice of medicine is conducted on empirical principles; for we are ignorant of the *modus operandi* of some of the most powerful medicines, and only apply and prescribe them from our experience of their utility.

EMPYREUMA is a term applied to the offensive smell that distilled waters and other substances receive from being exposed too much to the fire, and hence the term empyreumatic is applied to burnt substances, such as oils and fats, which, in ordinary phraseology, are said to smell of the fire. There is not, perhaps, a more pernicious and indigestible substance than empyreumatic butter, lard, suet, and oil, and yet almost in every case in which these substances enter into pastry, especially the crust of pies, they acquire this quality, and it is not a little astonishing that some substances are even praised for possessing this quality.

EMPYEMA means a collection of pus or seropurulent fluid within the cavity of the chest, and is generally the result of inflammation of the pleura. The symptoms of empyema are, oppression at the chest, difficult breathing, inability to lie except on the affected side; and as the accumulation goes on, there is an inequality of size between the two sides of the chest, the spaces between the ribs of the affected side are enlarged, and bulge outwards, and sometimes a feeling of fluctuation can be perceived. The treatment consists in the performance of a surgical operation, by making an opening in the space between the sixth and seventh true ribs, to evacuate the contained fluid; but as this operation can only be performed by a skilful surgeon, we forbear entering on any particular description of it.

EMULSION. Oily medicines resembling milk, and of a soft lubricating character, are denominated emulsions; for example, the almond emulsion, the gum arabic emulsion, and the camphor emulsion. See *Almonds*, &c. Sometimes emulsions are called milks, as the milk of almonds, the milk of ammoniacum and asafœtida, &c.

ENDERMIC MEDICATION, OR THE ENDERMIC SYSTEM OF MEDICINE. As this term is every day becoming of more frequent use, and as the subject is one connected with the practical elucidation of one of the most wonderful functions of the body, it would be an unpardonable omission in a work of this description. It is a well known fact, that there are immense numbers of small pores or perforations in the skin, and that these are distributed over the whole surface of the body, and have a most powerful sympathy and action upon the mucous membrane that lines the whole cavity of the great intestinal canal from one end to the other. It has long been a practice to introduce medicine into the system by means of these vessels, which was absorbed by these imperceptible vessels, (for they are imperceptible to the naked eye), and carried into the general circulation. The continental physiologists have considered

this cutaneous absorption or imbibition under two heads. To the first, which consists in the simple rubbing in through the skin of medicinal substances, they have applied the term ratraleptic medicine; to the second, they have given the name of endermicative, now adopted in Britain; and this consists in the removal of the epidermis by such means as will not produce any structural change in the subjacent tissue, and then the introduction of a remedial agent through the denuded surface. These two systems have of late been carried to a very great extent, and will probably, at no very distant day, prevent the patient from the disagreeable necessity of swallowing many a nauseous and bitter draught. To render the matter more plain to general readers, let us suppose that we wished to procure sleep for a restless patient, but the stomach is so irritable, that even the attempt to swallow the smallest dose is ineffectual, and if an opiate is injected into the lower part of the bowels, it is immediately returned. The patient is in insufferable pain, and some relief must be afforded. In this case we cut a small paper, say the size of a penny piece or a crown piece; we moisten this with spirits of wine, but do not make it so wet as that any of the spirit would run from it. This we place on the inside of the upper part of the thigh, and with a lighted taper set fire to the paper. The spirit of wine causes it to burn rapidly, and a blister will be produced, or in other words, the epidermis or scarf skin will be separated from the skin below, and more effectually expose the mouths of the vessels. This scarf skin being removed, a proper quantity of the muriate of morphia, the anodyne principle of opium, will be scattered over the tender surface, and the vessels will speedily absorb it, and the patient soon feel relief. This same process may be used with other medicines of an active kind, and the most beneficial results have followed the practice. The system is not, however, so fully understood as to the precise difference of the effect produced by a particular dose, as by the ordinary method. The profession have long been in the habit of introducing mercury and opium by friction, but it is only of late that, facilitating the operation by the removal of the scarf skin was thought of, or even tried, but in rare instances. See *Skin, Anatomy of*, &c.

ENDIVE, or *Cichorium Endivia*. This plant, which is easily cultivated, and may be had in some one species at all seasons of the year, is an extremely wholesome salad, possessing bitter and anodyne qualities. The curled variety is generally preferred. It may likewise be used as a pot herb as well as a salad.

ENEMA. The medical term for an injection, or clyster, which is a formula of administering medicines or nourishment by the rectum. Clysters are thrown into the gut by means of a bladder and pipe, or by some of the various syringes made for the purpose. Of these the best and most simple is Reade's syringe, or those constructed on the same principle, as it is less liable to get out of order, and may be used by the patient himself without any assistance It forms a valuable acquisition to the domestic medicine chest. Whatever kind of apparatus is used for the purpose of administering enemata, the pipe which is to be introduced into the bowels should be well oiled or smeared with lard, and inserted gently, and with great caution; and if the injecting syringe above recommended is used, care should be taken to keep the end of the syringe always beneath the surface of the fluid, so as to prevent air entering along with the injection. With regard to the composition of enemata, they required to be varied according to circumstances, and the composition of particular enemata will be given when speaking of diseases where they are requisite; and the method of preparing the common laxative and turpentine injections, will be found in the domestic pharmacopœia attached to this work. The following general rules may, however, be serviceable:—1st. That laxative enemata should be large in quantity, and used pretty warm. 2ndly. That all opiate or any other kind of injection which is wished to be retained, should be as small in quantity as possible. The best fluid which can be used in making up injections, is either barley water or thin lintseed tea, because when strained through a bit of rag, they are quite free from seeds and other irritating particles, and therefore much preferable to oatmeal gruel, which is frequently used.

EPHEMERA. A fever which begins, is perfectly formed, and runs through its course in the space of twelve hours; and the term *Ephemeroides* is applied to diseases that return at particular times of the moon, and are so called, because, like the moon's age, they may be foretold by the stomach.

EPIDEMIC AND ENDEMIC. This is a medical term which is familiar to almost every ear the owner of which mixes in civilized society, and yet it is a word not very generally understood. It may be defined a disease that attacks many people at the same season, and in the same place, and originates in a common cause. An endemic disease, on the contrary, is a disease peculiar to a certain class of persons, or country, or district of a country. For example, bronchocele or struma is endemical to the inhabitants of the Alps, and other mountainous countries bordering thereon. It is a disease very often met with, and is known by the name of *goitre*. The same disease is also endemical in Derbyshire, and is there known by the name of the Derbyshire neck, being rarely met with in other quarters of Britain. The *Plica Polo-*

nica, a disease of the hair, is endemical to Poland, being seldom seen in any other quarter of Europe; and scurvy is likewise endemical to sailors, being more exposed to the cause which produces it than any other class of people. We have compared and classed these terms, as we have often in ordinary life heard them confounded. To enter into a consideration of the numerous causes which give rise to epidemic diseases would occupy more of our space than we can devote to the subject, were it even consistent with the nature of our plan. Suffice to state, that the most generally assigned causes are, a peculiar state of the atmosphere, of the climate, the seasons, the weather, and as resulting from the meteorological causes, the irregularity and inclemency of the seasons. Others have attributed the principal agency in the production of epidemics to astronomical phenomena, such as planets, eclipses, and an unusual action of the sun on the earth, blighting the fruits of the earth, and thereby occasioning disease in those who use them as food. Earthquakes and volcanoes have likewise come in for a share of the blame; while the electrical fluid, and even thunder and lightning, have been said to produce such effects, that ultimately afflicted districts, more or less extensive, with epidemical complaints.

It being an established fact, that the lower animals, and those employed as food by man, are subject to epidemic diseases; that they have, when employed as food, communicated disease to man; and that even the fishes of the sea, and the fowls of the air, have contributed to swell the list of human mortality; putrid food of every description, especially animal food, even granting that the animal was in sound health when killed, is doubtless a fruitful source of disease; and the dead bodies of men or animals allowed to remain in any considerable number on the surface of the earth, will doubtless contaminate the air, and generate disease.

Amongst the most important agents in the spread of epidemics are contagion and infection; but as Dr Copeland judiciously remarks, 'great misapprehension has existed as to the extent of their influence, the exact parts they perform, and their mutual connection. Many writers have erred remarkably in viewing epidemic diseases as being necessarily infectious, and even contagious; and others, in considering them entirely devoid of infectious and contagious properties. The importance of determining in how far they possess either property, and are diffused in consequence; and the great interest of the subject in medical, commercial, and political points of view, have given occasion to much and warm discussion, a great part of which has not been calculated to advance the cause of science, or to elevate the medical character in the public estimation.' This was indeed lamentably the case in the discussions during the late prevalence of cholera. A very simple circumstance may, indeed, on the ground of infection, give rise to an epidemic disease, without hunting after the more remote and hidden causes. A foul or pestilential air may be generated by the congregating an immense crowd of persons in a confined apartment. Not a few of these may be predisposed to febrile complaints, and in consequence of inhaling these polluted atmospheres, they scarcely have time to return to their homes before the disease has commenced, and the next or following morning they are unable to rise. The disease spreads among their relations and visitors, and they, in their turn, communicate to others. The season is likewise favourable to the propagation of the malady, and by and bye there is an epidemic in the district, without the intervention of either a comet, atmospheric electricity, thunder and lightning, the fowls of the air, or the fishes of the sea.

In fine, from all we have heard, read, and observed on the subject, we are fully convinced that a combination of various causes are required to produce epidemic diseases, and that these combinations are very various. We have as little doubt that persons of different ages, states, and circumstances, physical as well as mental, are variously affected by these diseases; and thirdly, that the civilization and cultivation of a country, and the care taken to separate between the sick and healthy, are among the most powerful means of ameliorating the effects of epidemical distempers. There is yet, however, a most important question to be solved, and that is, How and in what manner will individuals, families, and communities most certainly escape the ravages of these diseases? We reply, By maintaining the *mens sana in corpore sano*, or, in plain English, a healthy mind in a healthy body. This, and attention to those numerous individually little, but when combined, powerful and effective measures, which ensure that happy and attainable state of body and mind, is certainly the surest safeguard against both endemic and epidemic, and indeed every other species of malady with which humanity is afflicted. That epidemic diseases are powerfully influenced as to the virulence or mildness of their character, by the state of the country or district, in point of cultivation, there can be no doubt. It is not more than sixty or seventy years ago that ague, or intermittent fever, was prevalent in Britain, and especially so in the neighbourhood of bogs and marshes; but now since agriculture has assumed so distinguished a place not only among the sciences, but the most useful arts of life, and drained so many thousands of acres of those bogs and marshes, the disease is seldom met with, unless in the fens of Lincolnshire, and those other quarters of England where these causes have not been removed. In upwards of

thirty years we never saw a case of the disease in Scotland, unless it was imported by some person from America, or those districts in England where it still holds a partial sway. The cultivated districts of North America afford abundant proof of the same fact. Draining marsh grounds is, therefore, one of the most efficient modes of preventing these diseases. In connection with this, may be mentioned the propriety of clearing the banks, and such a portion of large rivers as are dry during summer, of the mud, especially those that run through great cities, as the Clyde at Glasgow, especially that portion from the Broomielaw bridge to as far up as the Humane Society house. Two good purposes would be served by following up this suggestion: the air on the banks would be rendered purer, and of course the residence more healthy, while the fields and gardens would become richer and more prolific, by the application of the mud.

The improper situations which many of our sepulchral grounds occupy, has frequently been a subject of regret to writers on public hygiene, but we are happy to see a visible improvement in this respect rapidly advancing, not only as to the nature of the situation, but the soil best adapted to the purpose; and we have no doubt the anatomy bill, with all its faults, will accelerate the wishes of the more intelligent portion of the community on this head;—the widening of narrow streets and lanes, the cleansing of sewers and privies, and the free use of chloride of lime with a view of neutralizing the effluvia of such places. The washing of common or public stairs, and afterwards whitening them with the moistened chloride, is a measure well deserving the attention of the magistrate and the public. The quantity of the water used by families in the country, but especially in cities and towns, should be examined, and a filtering stone in every family would prove a greater luxury than an elegant side-board or a splendid sofa. Were it more generally known, the very improvement made even on apparently pure water, by passing it through a filtering stone, the measure would be adopted without delay. It is an article which should especially find a place in every vessel that puts to sea; for we have seen dirty stinking water that had been kept upwards of twelve months in a cask, rendered almost as pleasant as water from a spring, merely by passing it through a filtering stone. A handful or two of powdered charcoal, rummaged about in a cask of water before the water is put into the filtering stone, will render it more agreeable. This, however, may be omitted in such water as is required for washing. Did these useful institutions, Temperance Societies, know that one great reason for drinking grog on board ship, is to qualify the stinking water, they would, without delay, recommend the measure for general adoption. All that is required is a soft free-stone, hollowed out in the shape of a basin or a punch bowl, and fixed in a stout wooden frame, with a receiver one foot at least below the under part of the stone. There should be opposite this space between the stone and receiver, a space of about nine inches or a foot square, in the form of Venetian blinds, which allows a stream of air to pass through the water as it drops from the stone to the receiver. There are various forms of filtering machines, but this is one of the most natural and efficient. We do not, however, carp at the mode of filtration, so that the plan is adopted. Every mode, however, for the purification of stagnant water at sea, where the air is not permitted to pass through the water during filtration, and where this is not the case, the water, after being filtered, should be poured at the height of a few feet from one vessel to another, for ten or twelve times, to supply the deficiency.

In order to avoid epidemic diseases, especially in warm and uncultivated countries, the choice of a residence is a matter of the first importance; and even the situation of a temporary encampment, which travellers and sojourners in these countries are often obliged to employ. Those situations should be chosen, so that the most frequent winds from marshes and other sources of epidemics, should be avoided—being always to the windward of those sources of disease, especially during the night; and in temporary encampments, when obliged to take the leeward of a marsh; fires should be placed at short distances along the line, between the camp and the marshy district. The diet of persons placed in such situations should be mild and nutritious, and arrow root, sago, tapioca, Irish moss, and potato. Starch and flour as ordered to be prepared for patients labouring under erysipelas, with the same quantity of wine or spirits, may be used for breakfast and supper, but strong wines and spirits, except taken in this combination, are to be avoided. If tea is used, a few grains of ginger powder should be taken in each cup, or a tea spoonful of tincture of ginger will answer the same purpose. Breakfast should be taken before going into the open air, and animal food should be sparingly used; and Dr Hancock, who resided many years in hot climates, prefers dried animal food to fresh. The latter, he says, frequently induces malignant diarrhæa and dysentery amongst persons predisposed, as in sailors and soldiers, in hot climates. Indeed, he attributes much of the malignity of the cholera to the too free use of fresh or recently killed animal food. I know, adds Dr H., from prolonged experience, that in the sickly seasons of South America, dried meats, as the *tossago* or *tossaon*, are by far the most salutary, that is to say, beef cut into slips,

sprinkled with salt, and dried in the sun, either hung on a line, or placed in hurdles. By this means it is divested of the blood and putrescent juices, rendered more conducive to health, and affording a greater share of nourishment, as being easier of digestion. It is even more agreeable to most persons after a little use, particularly when preserved with a slight admixture of saltpetre, sugar, and common salt. It might be prepared with equal facility here, and would obviate the necessity of using meat in a half putrescent state, as we know the poorer sort of people, during the hot weather of summer, are frequently compelled to do, and which, I feel very confidently, contributes even more than the use of vegetables do, to the putrid diseases that prevail in hot seasons. The *tassadu* is by far the best provision for a sea voyage, and for those especially who are unable to lay in a supply of fresh stock; and, moreover, were this practice adopted, it would not fail to contribute vastly to the health and comfort of the seamen in Her Majesty's Navy; to all, indeed, on long voyages to the East and West Indies, especially serving at least to suspend most beneficially the use of salt junk for two or three days in the week. I am much mistaken if this plan, duly acted on, would not improve the economy of diet on ship board, more than all that has been devised; allowing, at the same time, due credit to lemon juice, sour crout, &c. My voyages on the Essequebo, the Rinoke, and amongst the West India islands, have so fully convinced me of the advantages of dried meats over those exclusively preserved with salt, that I could really wish to see it brought into general use.' We think these remarks of Dr Hancock's well deserving the attention of residents and travellers in warm climates. In addition to the precautions respecting diet, something in the shape of medicine may be employed, and perhaps the best form that can be used is a five grain mercurial pill every second night, at bed time, and two or three of the compound rhubarb pill the following morning. Three or four of the following pills should be taken an hour before dinner and supper, and indeed they should occupy a place in every portable medicine chest :—

Extract of camomile flowers, two drams.
Cayenne pepper, one dram.
Sulphate of quinine, two scruples.
Beat into a uniform mass, and divide into thirty-six pills.

If the extract is soft, no other ingredient will be necessary, but if hard, a little syrup will be required, so as to form a mass of proper consistence. This is perhaps one of the best formulæ that can be used by those who reside in a country or district where ague is prevalent, and are an excellent tonic and stomachic under any circumstances. In damp weather a fire should be used in every sleeping apartment before going to bed, and attention given to the shifting of any damp article either of bed or body clothes. It is almost unnecessary to add, that endeavouring to keep the mind in an easy and placid state, is a paramount duty during the ravages of epidemical disorders.

EPIGLOTTIS. The cartilaginous lid which shuts up the larynx during deglutition, and so prevents the ingress of foreign bodies into the larynx. See *Larynx*.

EPILEPSY. Three species of this disease are noticed by systematic writers, viz., the cerebral, sympathetic, and occasional. Epilepsy has likewise been defined convulsions with torpor, but general readers will better understand what is meant by the term on reading an account of the symptoms. An attack of epilepsy is sometimes so sudden that the patient has not the least warning of its approach, but falls down at once in a state of complete insensibility; at other times there is a feeling of oppression in the head, with vertigo or drowsiness, dimness of sight, and confusion of thought; and occasionally there is a peculiar sensation of cold, which has been named the *aura epiliptica*, or a sense of cold air passing up from some part of the body to the head, when the complete paroxysm comes on. During the fit, the muscles of the face are frightfully distorted, the tongue is thrust out of the mouth, and often bitten; the excretions, especially the urinary, are passed involuntarily, and the fæcal discharge is highly offensive. There is always more or less of foaming at the mouth. After these symptoms have lasted for a longer or shorter time, the patient gradually recovers, with yawning and a sense of lassitude, and for the most part is without recollection of what happened during the paroxysm. Although, however, the effect of a single fit is not productive of any visible change upon the animal economy, yet, when the disease recurs frequently, and the attacks are violent, the functions that depend upon the nervous system gradually become weakened, and alternately much deranged, so as to bring on imbecility of the mental faculties, and an imperfect power over the voluntary muscles. The exciting causes appear to be very various, originating from a great number of different circumstances, that bear different relations to each other, and all nearly produce the same symptoms. The most obvious are, first, injury or malformation of the skull, or the parts included in it; certain states of the alimentary canal, particularly worms, or that diseased condition of the contents of that canal which favour the production of these animals; the particular irritation caused by bathing, violent mental emotions, especially surprise and terror, and unexpected disappointment, repeated intoxication, the effect of some febrile disease, such as typhus fever; and lastly, a hereditary tendency in the constitution, which is not easily explained, but of the existence of which there is abundant proof.

The distinguishing or diagnostic symptoms of epilepsy, or those in which it differs from apoplexy, and some other convulsive affections, are convulsion of the limbs, in connection with torpor or profound sleep, and the foaming at the mouth. There are few favourable prognostic signs attendant on this disease. When the malady depends upon cerebral conformation, or permanent disorder in the brain, it is incurable. Those who have been attacked before the age of puberty, especially females, are very likely to be relieved from the disease when sexual characteristics appear, and this not unfrequently happens to boys. When the disorder is sympathetic, it for the most part yields with the yielding of the primary complaint; but in those who have been seized with the disease after their thirtieth year, or in cases where the brain suffers only in a trifling degree, it often terminates in idiotism or madness—terminations even less desirable than death itself.

With respect to the treatment, when the cause is not obvious, we have but little to guide us in our operations, except a reference to the general state of the functions. On the contrary, when the exciting cause is clearly ascertained, we of course direct our whole attention to the removal of it. The state of the bowels is one of the first things to be ascertained, and in children we are often able to remove very formidable attacks of the disease, by completely clearing the alimentary canal. For this purpose, one of the very best medicines that can be employed, is a powder composed of equal parts of calomel, jalap, scammony, and the true James's powder, and refined sugar, in doses of a scruple to an adult every second day, in jelly or honey. In children, the dose according to age, &c., may be from ten to twelve or fifteen grains. It is a matter of some importance in preparing the powder, that the ingredients be most intimately mixed in a glass, or Wedgewood mortar. Adults who find no difficulty in swallowing pills, may employ the following with equal benefit, in doses of three or four pills every second night and morning, using an occasional sodaic powder during the day:

Compound extract of colocynth, two drams.
Calomel and true James's powder, each half a dram.
Simple syrup, as much as is sufficient.
Beat into a uniform mass, and divide into thirty-two equal pills.

Either of the above prescriptions will effectually clear the alimentary canal, and if worms are present, they can scarcely fail to be expelled, especially the long round worm. In those constitutions where calomel produces much griping and nausea, a pill may be formed of equal parts of the mercurial or blue pill and the compound extract of colocynth, and taken in doses of four or five grains of each of these ingredients every second night, taking a tea spoonful of epsom salts in a wineglass of mint or ginger tea the following morning. When the digestive organs seem to suffer from acidity or flatulence, these should be removed by appropriate remedies, such as a scruple of the compound powder of columba, (see *Columba*) an hour before meals, that is, three times a day in a wineglass of peppermint tea or peppermint water; and when there is a general weakness of the digestive organs, stomachics and tonics may be employed, according to circumstances, such as a wine glassful of the infusion of gentian (see *Gentian*) three times a day, or three grains of quinine dissolved in fifteen or twenty drops of elixir of vitriol, and a wineglass of cold water, at the same intervals of time. In this, however, and all similar cases, we find that, in proportion to the obscurity of the complaint, and the real difficulty which there is in relieving it, so is the number of infallible remedies that are held out to the hopes and fears of the unfortunate patient. The remedies that have been generally employed are antispasmodics, generally possessing some property that powerfully affects the external senses; tonics, and a miscellaneous description of remedies, which can only be referred to their power of acting upon the imagination. Some of the principal antispasmodics are ether, castor, musk, and valerian, to which it has been the custom to add opium, and various other sedatives. It is not impossible that benefit may have been derived from these substances in certain cases; but we have no belief that they have any great power over proper epilepsy. Tonics, especially preparations of the different metals, copper, silver, zinc, arsenic, and iron, have all likewise, in their turn, been tried, and have been found of as little permanent benefit as their predecessors, the antispasmodics. We have little certain knowledge in what manner these substances act, and for what particular varieties of the disease they are more particularly serviceable. Peruvian bark and its preparations, and sometimes other vegetable tonics combined, have long been employed in the treatment of this disease; and there are doubtless frequently circumstances in the state of the epileptic in which they are useful. We have enumerated worms among the exciting causes of this disease, and tape worm is more especially so; and as oil of turpentine is almost considered a specific in the removal of that species of worm, it is certainly, when either remedies have failed in the cure of epilepsy, entitled to a trial. Although the other remedies we have named will not remove tape worm, yet sometimes portions are brought away, and therefore the stools of epileptic patients should be attentively examined. Tape worm, however, often exists, although no portion has been discovered in the stools, and the turpentine is, therefore, well entitled to a trial. See *Turpentine* and *Tape Worm*.

Sea bathing or cold bathing, under proper

directions, and always with a competent, active guide, is often of advantage. The moral treatment, too, is a matter of greater importance than is generally imagined; for we have frequently seen an incautious announcement of a certain circumstance, induce a fit of the disease. In fine, from all we have read and seen of the efficacy of new remedies, and our own experience, we are inclined to think that judicious moral treatment, combined with a regular diet, and a strict adherence to the alterative or purgative plan, is the best treatment that can be pursued in epilepsy. With respect to the use of the composition which we have found so useful in several cases, we have uniformly found it to act as an aperient, and are inclined to think on its action in this way its efficacy depends. If used according to directions, and properly prepared, it is a mild, safe, and efficacious tonic, aperient, and, in our humble opinion, well entitled to a trial, not only in this, but in other diseases, where such a remedy is indicated. See *Apoplexy*.

EPILEPTIC FIT. We have placed this stage of epilepsy as a separate article, as many are at a loss how to proceed when they see a person drop down in one of these fits or paroxysms. During the fit, care must be taken to loosen every thing about the patient, if a male, especially his neck cloth, buttons of the collar, and his braces; and if a female, any girdle or belt, and the hooks and pins of the gown, nay, the lacings of the stays. It is sometimes necessary to introduce a piece of wood between the teeth, to prevent the tongue from being wounded; and this operation is even said to shorten the time of the fit. The introduction of a little salt into the mouth sometimes has the same effect. The shoes, especially if tight, should be taken off. Sponging the face with cold water, or vinegar and water, is likewise useful, and the application of spirit of hartshorn or volatile smelling salts to the nose. It is always right, as in apoplexy, to let the head be rather high. When the patient opens his eyes, and his senses begin to return, twenty-five or thirty drops of spirit of hartshorn may be given in a wineglass of peppermint water, or half a glass of brandy or whisky, and the same quantity of water. Previous, however, to being asked to swallow any liquid, the mouth should be well cleaned from the froth, or gurgled with cold water. The management, in other fits resembling epilepsy, is the same in every case. Those present should avoid crowding round the patient, and if in a house, the apartment should never be crowded, but the doors and windows thrown open.

EPSOM SALTS, OR THE SULPHATE OF MAGNESIA, sometimes called *Vitriolated Magnesia*, and formerly the *Bitter Purging Salt*. This deservedly popular salt is composed of magnesia, sulphuric acid, and the water of crystallization, and is now generally obtained from sea water. It appears in circular crystals, which occasionally, owing to an admixture of muriatic magnesia, deliquesce or become fluid, on exposure to the air. The pure sulphate effloresces or turns into a dry powder, by loosing its water of crystallization, and is soluble in equal parts of water at 60°, increasing the volume of water four-tenths. From the very cheap rate at which this salt is now prepared and sold, there is little temptation to adulteration. The glauber salt, which is, however, cheaper by nearly 200 per cent., is made to imitate the epsom salt, and sold under its name. The sulphate of magnesia is used in almost every case where a saline purgative is required, and operates without griping, and seldom produces nausea or vomiting, which is the more to be wondered at, seeing many of the working classes, and especially seamen, are not satisfied with less than an ounce and half, or even two ounces, as a dose. The most agreeable mode of taking epsom salts, is by dissolving them in infusion of roses, acidulated with elixir of vitriol; half an ounce being dissolved in half a pint of the infusion, and taken in three parts, at intervals of two or three hours. This is the plan in general followed by the apothecaries of London, who sometimes add two drams or half an ounce of the compound tincture of cardamoms to the mixture, and then divide it into draught vials, each containing an ounce and half, and one of these taken every three hours. There is generally, however, some mercurial purgative, such as a four or five grain mercurial pill, the previous evening, or a dose of calomel the same morning. Infusion of peppermint, or infusion of ginger, gentian, and cinnamon, are excellent vehicles for taking epsom salts, and two drams of the salt, dissolved in half a pint of fluid, will operate as well as half an ounce in two ounces of fluid. Those salts are an excellent addition to purgative enemas, and two ounces dissolved in half a pint, or even a pint of warm water, or thin gruel, or barley water, forms an excellent purgative enema, without any other addition. Combined with a solution of assafœtida, they form a useful enema in spasmodic colic. They are decomposed on being mixed with fixed alkalies, and their carbonates, lime water, sugar of lead, nitrate of silver, and muriate of barytes; but these are combinations into which they are not likely to be thought of in domestic medicine. In fine, we know not a more useful domestic medicine. A wide-mouthed bottle, capable of holding one or more pounds, well corked, is an acquisition to any family living at a distance from medical aid, and should never be wanting in the home or sea medicine chest; and seeing such a bottle may be had for one shilling, few can plead excuse for

wanting what may be so useful to themselves, their friends, their domestics, and poor neighbours.

ERGOT OF RYE, or the *Secale Cornutum*. Strange as it may appear, this substance, which is capable of producing deleterious effects on the human frame, and even in some cases, in large doses, of acting as a poison, as stated in the next article, is now considered one of the most valuable articles of the materia medica, and is very generally employed by medical practitioners. It is, as stated in the following article, a production of the seeds, is long, horny, and cartilaginous, and is sometimes straight, and at others curved; sometimes it is found more than two inches in length, and its resemblance to a cock's spur has given it the name by which it is distinguished. On breaking a spurred seed, we find a substance of a dull white colour, adhering to the violet skin that surrounds it. The ergot is likewise covered with a thin pellicle, and filled with a gray powder. Such is the high price often—five shillings an ounce—that a farmer who could produce a field of spurred rye, would realize a fortune. The women and children in France, Spain, and other places, wade through the fields, and even at the high price they procure, seldom realize ordinary wages. It is indeed difficult to procure it of a good quality, and it is frequently mixed with other substances resembling it. Its medical effects are indeed powerful, and chiefly confined to the uterine system. In the hands of a skilful and judicious practitioner, it greatly facilitates child labour, and prevents the use of instruments, when, from debility or other causes, labour pains have ceased. It should, however, be administered in no case, unless the mouth of the womb is sufficiently dilated to allow the child to pass. It is administered in the form of powder infusion or tincture. It is frequently used in uterine hæmorrhages, in suppressed menstruation, and in other diseases of the uterine system.

ERGOTISM. This is the name given to a disease induced by eating diseased or blighted corn, especially rye. Diseased grain is well known to be one of the most fruitful sources of epidemics, in certain seasons and districts. It not only produces diarrhea, dysentery, and fever; but in places where rye is used as a principal article of food by the peasantry, it even produces a gangrenous affection of the lower extremities, with a considerable degree of nervous derangement, and a corruption of the whole animal fluids. Some years ago, many individuals lost their limbs, and not a few died, from this cause, in the south of France. This disease of the grain, producing disease in man, as it affects rye, is denominated the spur or ergot of rye. It is not, however, peculiar to rye, but is very seldom found in any other gramineous plant. It is somewhat analogous to the smut in wheat, and believed to be produced by a similar cause. The spurred rye occasionally occurs in Britain, but not to such an extent as to produce the dry gangrene, as it has been proved to do in France and Switzerland. Dr Wollaston has narrated several cases, however, in which dry gangrene was produced in one family by partaking of damaged wheat; and nearly the same effects were produced in a family in Wiltshire, by the *L. olium temulentum* entering largely into the composition of bread. The result of the experiments made in France by M. Tessier, under the direction of the Royal Society of Medicine, afforded an explanation of the fact, that persons might live a considerable time upon rye affected with the cock spur, without suffering any sensible injury from its use; since on all the animals on which it was tried experimentally, a given quantity was required to produce the specific effect; and they suggested the only measure, that of separating the diseased from the sound rye, which could prevent so great a national calamity as that which has been so often produced by its use. It has been observed that the most rainy seasons are the most productive of this disease, and that it is common in the United States of America, as well as on the Continent of Europe. It is most commonly met with in moist soils, and seldom on high or dry grounds, unless where the furrows prevent the water from running freely off, and in those cases the lower parts of the field are most prolific of the disease.

ERRHINES. A class of substances which act immediately on the part to which they are applied, which is to the mucous membrane of the nostrils, and excite sneezing, and increase the secretion of mucous, independent of any mechanical agency. They have sometimes been divided into sternutory errhines, which are used for the torpid and vigorous constitutions, but which are attended with danger in their administration to the plethoric, or where there is a great determination of blood to the head. These are the euphorbium and white hellebore, and even tobacco snuff, all of which produce a great discharge. The other are the evacuating errhines, such as asarum, asarabacca, which see under their respective designations. Errhines are useful in several affections of the eyes, &c., but an excessive snuff is not without its attendant evils.

ERUPTION. See *Itch*, *Shingles*, &c.

ERYSIPELAS, ROSE, OR ST ANTHONY'S FIRE. By these and other names is erysipelas known, both here and on the Continent of Europe, although some of these, especially the last, is daily applied to other diseases of far less importance. There are three well defined species of the disease, the simple, phlegmonous, and œdematous. The simple erysipelas shows itself by a yellowish red colour, but rarely

of a deep red, on the surface of the integuments, chiefly on the face, arms, and thighs; but other parts of the body are not exempt. On the pressure of the finger, the redness disappears, and there is a heat and a painful sense of burning and itching, while the febrile or feverish symptoms occur at the commencement in some cases, and secondarily in others. These inflammatory appearances terminate by disquamation, or the formation of scurf, on the twelfth or fourteenth day, in simple cases, but frequently there are more serious consequences. It should be recollected that in other affections of the skin, there are the same precursory symptoms as in erysipelas. Anxiety and restlessness, bitter taste in the mouth, nausea, headache, and heaviness; starting in sleep, and oppressive internal heat; a frequent and hard pulse, giddiness, and disposition to delirium, are also symptoms denoting a disordered state of the bowels; and the drowsiness is increased if the disease attacks the face. Afterwards the inflammation concentrates itself upon a particular point, and here the skin and integuments are particularly swollen and distended, and are of a reddish orange colour. If the pressure of the finger disperses the redness on the smooth shining skin, the colour instantly returns. There is a sharp, burning sensation felt by the patient, which after some time is changed to itching, and the inflammation declines. As if by the action of a blister the cuticle is raised, it soon breaks, detaches, and separates itself, and a yellow scum flows from the part attaching itself to the surrounding skin, and becoming dry on its surface. When the disease attacks the head, it is always most dangerous, from its proneness to spread to the membranes of the brain. Indeed, some have entertained the notion, from the circumstance of delirium accompanying the early stage, that the membranes of the brain were the early or original seat of the disease. According to the various parts of the body it attacks, erysipelas presents various characters more or less intense. The slightest cases are those where it attacks the extremities, although we often see most severe cases when a large collection of matter forms under the fasciæ of the limbs, yet the danger is comparatively small. If it occurs on the foot, it spreads rapidly to the leg, and there is great tenderness on pressure of these parts, which are inflamed and swollen. This disease attacks the mammæ or breasts of females, and is commonly accompanied with much pain and suffering. The breast is red and swollen, and sometimes suppuration ensues. Dr Baron alludes to cases of erysipelas in infants, commencing at the umbilicus, and extending over the abdominal region. It arises sometimes in the neighbourhood of the genital organs, and exhibits a tendency to gangrene or mortification. The phlegmonous, according to the arrangement of Alibert, which we have followed, is the next species of erysipelas. This variety, indeed, exhibits the characteristics of a double malady, comprehending the symptoms of erysipelas and phlegmon, or inflammation. It may occur, like the preceding, in every part of the body, but those parts where the distribution of nerves are most abundant, are most frequently its seat; hence the face is so very frequently attacked. Next to the face is the thorax and abdomen. The stomach suffers more frequently and severely than in the simple variety of the disease, and there is often great nausea and vomiting. In fine, the constitutional disturbance and febrile symptoms, are doubly severe, and the redness more intense; the skin more elevated, and resisting more forcibly the impression of the finger; every symptom telling that the inflammation is deeper seated. The pulse is hard and frequent. About the fifth day, resolution or the abatement of the severe pain and inflammatory process, sometimes takes place; but more commonly suppuration or bealing is the consequence. In the latter event, shivering and throbbing in the part give notice of it, and when matter is formed, it should be discharged early by making free incisions, so as to allow a ready exit for the sanious matter, and so prevent it burrowing amongst the deeper seated parts; and this is more especially imperative, when it is situated beneath any dense membrane, as the fascia of the thigh, leg, or fore-arm. This species of erysipelas is most to be dreaded when it attacks the head, and its effects are often more speedy than might be apprehended. The remaining species, viz., œdematous erysipelas, is the consequence of another disease, and is formed by the effusion of fluid into the cellular tissue, and at its commencement scarcely ever shows itself in a form deserving the name of erysipelas. It is somewhat analogous to dropsy of the cellular membrane, (see *Anasarca*), only that this is accompanied with some heat of the skin, redness, and pain. There are vesicles or small blisters formed on the skin, but not so distinct as in the other varieties; and in this the skin is weak, and without the power of resisting the pressure of the finger, but in the preceding it is hard and unyielding.

With respect to the causes of erysipelas, in some there appears a more than common disposition to plethoric fullness, and erythematic inflammation, and these are the subjects that are predisposed to erysipelas; and when a person has been once affected by it, they are afterwards peculiarly liable to its attacks. Young females, with great tenderness and irritability of the skin, are much more predisposed than males, particularly at the period of menstruation; and perhaps next in order, young men of a plethoric habit and fine skin. It often follows suppressed hæmorrhages or discharges which have

been exercising beneficial effects on the system, and the suppression of the menstrual fluid, or the discharge from hæmorrhoids or piles often produces it. Exposure to the heat of the sun, or the frosty air of a severe winter, certain habits of life, as those of the epicure, who freely indulges in stimulating diet and wines, are powerful predisposing causes. Irritations in the stomach and bowels, or poisonous and irritating substances taken into the stomach, especially shell fish, such as cockles, muscles, and oysters, who feed on metalic ground, and the acrid juices of plants applied to tender parts, such as the genitals. The most formidable cases are those which follow gunshot wounds, but it is often a consequence of the most trifling wounds, such as the puncture of a lancet, especially if not clean, leech bites, and the stings and bites of wasps, adders, and insects, and all surgical operations where incisions are made. Infection, too, has been proved to occasion the disease; and when this is the case, it is very prone to attack the face, and assume some of its more dangerous forms; it also appears occasionally as an *epidemic*.

Respecting the *treatment* of erysipelas, much must depend on a serious consideration of the situation and circumstances of the patient. The mild and simple form of the disease is easily removed by gentle purgatives, such as the compound infusion of senna, in doses of a wine glassfull every three hours, with thirty drops of sweet spirits of nitre in each dose, or the dose regulated according to the age and circumstances of the individual. When the bowels have been well opened during the day by the senna, a diaphoretic powder may be taken at bed-time, consisting of six grains of Dover's powder, and four grains of the *true* James' powder in jelly or honey, or the following draught; laudanum, antimonial wine, and wine of ipecachuan, each thirty drops, ginger tea, a wine glassfull, mix and take at bed-time. Previous to taking either the powder or the draught, if the disease is not in the legs, they may be bathed in warm water, and half an hour after the medicine has been swallowed, and the patient in bed, a breakfast cupfull of warm gruel in which is dissolved from five to ten grains of nitre, may be given. In every case of erysipelas, however mild, the patient should keep the house, as any exposure to a cold moist atmosphere might aggravate the disease, and convert a very mild case into one more obstinate. If there is much itch in the part affected, it may be covered with a thin mule muslin bag, half filled with equal parts of flour and magnesia, intimately mixed. This, although a remedy now almost out of fashion, will often be found of considerable service, as it not only defends the skin, but absorbs the cutaneous discharge, and prevents it from irritating the surrounding parts. A perseverance in these means will in a few days remove the disease. If the affection has been in the face, neck, or any other part usually exposed to the air, the patient should not leave the house; or if he does, cover the part till the skin has assumed its usual healthy appearance. We have seen want of attention to those precautions occasion a return of the disease with increased violence.

Where the disease is of a more aggravated character, and especially when the stomach is irritable, and there is present a considerable degree of fever, the first thing that should be done is to clear the stomach by an emetic, consisting of fifteen grains of ipecachuan, and two of emetic tartar, in a wine glassfull of cold water, to be taken in two shares, at an interval of fifteen or twenty minutes; and if the first portion operates, the remainder need not be taken. When this is taken at bed-time, the compound infusion of senna should be ready to commence with early the following morning, to be taken as already directed, in more mild cases with thirty or forty drops of the sweet spirit of nitre in each dose, and at the same time a pill consisting of three grains of the mercurial pill, and two of the *true* James' powder. In this way three glasses of the infusion and three pills will be taken in the course of three days. The same medicine and other measures recommended at bed-time, may be likewise followed, as in the more mild case. If, notwithstanding those remedies, there be no abatement of the symptoms, and the inflammatory action still high, from eight to twelve ounces of blood may be taken from the arm of the patient. Local blood-letting by scarifications may be employed with great benefit, especially where the disease is in the extremities. It relieves tension, divides the vessels, supplying the inflamed skin, and allows of a free flow of blood, and the part should be placed in a vessel of warm water to encourage the bleeding. If the pulse continues hard and full, and other symptoms of excitement continue, after blood-letting has been tried, saline purgatives, and the exhibition of camphor mixture, and diaphoretics, should be had recourse to, and the infusion of senna should be omitted. With respect to external applications, there was for some time considerable difference of opinion among the faculty, whether these should be wet or dry, warm or cold. Where the disease is superficial, the dry covering is the best if there be no vesication or small blisters on the surface, but when this is the case, rags two or three times folded, moistened or wrung out of spirit of camphor, should be applied, and kept constantly in a moist state; or thick folds of lint, dipt in warm water, applied over the part, and covered with oiled silk. If there is vesication on the surface, and reason to believe, by the constant throbbing,

that suppuration is going on below, then the barm or yeast poultice should be employed. Where the disease affects the head, cold evaporating lotions, or the rags moistened with the camphorated spirit, should be applied to the shaved scalp.

It should ever be a special object in the treatment to guard against debility, for it may exist, or be fast approaching, even when symptoms of considerable excitement are present. On this account, *blood-letting should be used with great caution.* When the disease appears in the face and head, medical advice should be taken without delay. *In the sequel of the disease*, a liberal allowance of wine or good sound strong ale, and quinine in doses of from three to four grains, three times a day, should be given. In the *erysipelas of children*, the same treatment may be pursued as we have directed for the more simple forms of the disease; only the doses of the medicine should be proportioned according to the age and strength of the patient. The following is an excellent medicine for children in the first stage of the disease:

Take of calomel and refined sugar, each one scruple.
—— True James' powder, fifteen grains.
—— Ipecachuan powder, ten grains.

Mix intimately in a mortar so as to form a uniform powder, and divide into six equal powders.

One of these may be given night and morning to a child from five to ten years, and one every night to a child below that age. The external applications may be regulated as already described, and in the second stage, a nourishing diet, with from half a grain to a grain of quinine, given in marmalade three times a day.

With respect to the *diet* both of children and adults, it should in the first stage be regulated by the strictest antiphlogistic principles. When, however, suppuration has commenced, arrow root, sago, or tapioca, or a mixture of two parts of potatoe starch and one of the best flour, the latter composition being equal to either of the former, when cooked in the same manner as arrow root, may be made into a well boiled jelly, and taken with one or even two glasses of good sound wine twice a day. The wine and sugar, sufficient to sweeten the jelly, may be added about two or at most three minutes before the jelly is taken from the fire. Where good wine cannot be procured, half a wine glass of brandy, or good old whisky, may be substituted, and added as the wine a few minutes before removing the jelly from the fire. Rich chicken broth, or beef tea, in either of which is boiled a few whole black pepper corns, and fine water biscuit, or plain toast, may be used as dinner. In cases of patients who have been accustomed to wine and a rich diet, even double the quantity of wine above stated is indispensably necessary during the suppurative process. Every article, however, of a fat luscious nature, or likely to cause acidity, must be avoided.

In the state of convalescence, and after the matter has been discharged, if the tongue is clean, a pint of wine may be allowed in the course of the day, and two or three grains of quinine three times a day. Solid animal food, such as veal steaks, the lean of roast mutton or roast fowl, may be taken, but the appetite should not be palled with crust of pies, or other rich dishes, that will debilitate instead of invigorating the constitution.

ESCHAR is a term which signifies the portion of flesh destroyed by the application of a caustic; and hence the name of *escharotics* is applied to caustic and corrosive substances, or those substances which possess a power of destroying the texture of the solid parts to which they are directly applied. Those in most common use are common and lunar caustic, burnt alum, blue vitriol, and the mineral acids.

ESCULENT. Such plants, or any part of them, as may be used for food, are denominated esculent plants; or the term is applied to the particular part of the vegetable usually employed as food; as for example, we should say the tops, or in other words, the flowers of cauliflowers, are esculent, the leaves of cabbage, and the roots of carrots, &c., &c.

ESSENCE. This name is generally applied by apothecaries and perfumers to diluted essential oils, or essential oils dissolved in alcohol or rectified spirit. For example, the essence of peppermint is formed by dissolving one part of the essential oil with twelve parts of rectified spirits, and in the same way the essences of anise, cloves, nutmegs, cinnamon, carraway, pimento, pennyroyal, fennel, &c., &c., and this is a very convenient form for mixing any of those oils with water, or they may be dropped on a bit of refined sugar, as the undiluted oils are too strong and caustic to be used alone. The practice of mixing rectified spirit with essential oils, is likewise practised on a large scale by perfumers, and the diluted oil or essence, when rubbed on the hand or dropped on a handkerchief, will not only in some cases yield a perfume equal to the oil, but even more grateful, and more widely diffused.

ESSENTIAL OIL. See *Oils.*

ETHER OR ÆTHER, has been defined by modern chemists a very volatile fluid, produced by the distillation of alcohol with an acid. We have, therefore, ethers without number, but the most common are sulphuric, muriatic, nitric.

The ether used in domestic medicine, and sold in the shops under the name of ether, is the sulphuric ether, which is produced by distilling a mixture of alcohol and sulphuric acid, or as it is called in vulgar language, oil of vitriol. The distillation of these fluids produces

a very volatile and clear spirituous liquid. If this liquid is exposed for a very short space of time to the action of the atmosphere, it will evaporate, in other words, it will disappear. It should therefore be kept in well corked bottles, or in bottles with stoppers, very accurately ground, and covered over with bladder or skin, so as to prevent evaporation. By an attentive perusal of many articles in this work, the uses to which ether is applied will be found sufficiently detailed. It is never prepared by the domestic practitioner, and seldom by the retail apothecary or druggist, but by the manufacturing chemist. Before stating the effects of this agent on the relief or cure of disease, it may not be altogether out of place to inform those who may be ignorant of characters of etherial liquids, to state that in dropping ethers from one vessel to another, they should be kept at a considerable distance from a lighted candle, as they are very apt to catch the flame, and it may be, injure the person who is administering or preparing them. If a bottle or vessel containing ether should be broken, or ether be otherwise spilt, and the fluid catch fire, it will only increase and diffuse the flame to throw water on it, but sand will extinguish it most speedily. Sulphuric ether in large undiluted or only partially diluted doses—for it cannot be taken or swallowed in its undiluted state with safety—irritates the stomach extremely, and produces unpleasant symptoms followed by those of intoxication. It is, nevertheless, a most useful and effective medicine, and should always form a standard article in the domestic medicine chest. In small doses, it acts on the nervous system sometimes as a sedative, at others as a lively stimulant, but always in a transient manner. It is employed with advantage in the generality of nervous affections, such as spasmodic vomiting, nervous colics, hysteria, asthma, and in general all nervous and typhoid fevers, to calm convulsive movements, hiccup, and other nervous symptoms. It is sometimes used in conjunction with the castor oil and turpentine enema, conjoined with laudanum, in cases of gravelly colic with great advantage; and the same enema, only omitting the laudanum, in worm cases, three hours after the administration of a purgative anthelmentic powder. Applied externally in cases of nervous headache, induced by severe mental exertion, it frequently, by its speedy evaporation, affords relief. A tea spoonfull or two applied over the head, taking care that it does not run down into the eyes, but is detained among the hair, is the best mode of application. In cases of fainting from a vitiated atmosphere such as occurs in crowded places of divine worship, or in theatres and fashionable assemblies, half a tea spoonfull of ether in a large wine-glass of cold water will revive the patient. It is, indeed, employed in a great variety of cases internally and externally. Cold water or any of the medicated aromatic waters, such as cinnamon, peppermint, or pennyroyal, are the best vehicles for its internal administration, and from thirty drops to a tea spoonfull the usual dose. It however requires, in the latter dose, a small tea cupfull of water to dilute it, and in the former a large wine glassfull, as it is not easily swallowed in a partial or half diluted state. Externally, as already stated, it may be used in every species of headache and meagrim, and applied with great advantage to the pit of the stomach in nervous vomiting, especially in females for the very distressing hiccup and vomiting to which many of them are exposed in the early stages of pregnancy. Ether, like every other stimulant, is liable to abuse, and instances are too numerous in which it is used for the same purpose as ardent spirits, and taken in incredible doses. Although not exclusively it is more generally employed by females than by males for this end, and not only domestic but professional physicians should beware of too frequently resorting to its use as restorative, and occasionally substitute some other remedy. Painful instances of its pernicious influence compel us to urge this caution on the attention of the friends of the nervous and hysterical.

ETHER, Nitrous, is used for the same purpose internally and externally as the sulphuric ether, but is not so powerful as the sulphuric, except in its action on the kidneys and liver. It is more frequently used when combined with alcohol, under the name of sweet spirits of nitre, and in this form is given in doses of from thirty to sixty drops in water, or an infusion of linseed, marshmallows, or any other demulcent liquid.

EUPHORBIUM or GUM EUPHORBIUM, is the produce or juice of the *Euphorbia officinalis*, a native of Africa. The euphorbium used in this country is brought from Mogadore, in tears about the size of a large pea, dry, friable, and externally yellow, but paler within, inodorous, and when chewed, has a nauseous burning taste. Its principal medical quality is that of acridity, and when applied to the skin, it produces inflammation, followed by vesicles, blebs, or pustules, and on this account it is frequently an ingredient in blistering plasters for horses. When swallowed, it vomits and purges, and in large doses often produces fatal inflammation of the stomach; indeed, the greater number of the family of plants to which it belongs are powerful acrid poisons, and some of them possess narcotic properties. It is sometimes employed in amaurosis, when greatly diluted with starch or some mild powder, to promote a discharge from the nose, and in ophthalmia. It is, however, a dangerous article to employ as an errhine, or

snuff, and much better and safer compounds are easily procured.

EXCREMENT; a term employed to denote the alvine discharge or fæces.

EXCRESCENCE. Warts, wens, encysted tumours, and other growths, are called excrescences.

EXCRETIONS. Those fluids or substances which have been generated in and separated from the body as useless; such as the urine, the alvine discharge, the perspiration, and in females the menstrual discharge are *excretions.*

EXERCISE. A due proportion of exercise is essentially necessary to the perfect action of every function both of body and mind. By its excess they are exhausted, and fall into premature decay; while by the want of it their vigour is impaired, the body becomes incapable of maintaining itself in health, and the mind partakes of the languor and inactivity of the body. Each extreme is indeed injurious, yet the greater number of diseases originate from the latter cause, especially in civilized society; and its first effects are generally most apparent upon those organs and functions of the body that are subservient to the nutrition and support of the system. Exercise is indeed as essential to health as air, food, or raiment; it circulates the blood thoughout the whole body, for the nourishment of all its parts. Walking is the most natural, and perhaps, the best mode of exercise, for the preservation of health, although, for its restoration, other species of exercise may be more appropriate. A sedentary and inactive life is the bane of millions, and as we have already stated, one prolific source of a variety of diseases. It is one if not the most powerful source of indigestion in all its Protean forms, lowness of spirits, confinement of the bowels, determination of blood to the head, chest, and abdomen; and where you see a dyspeptic or hypochondriac, ten to one but you at the same time look on an individual of sluggish and inactive habits. Exercise for an hour or two daily should be taken in the open air; or when the weather is unfavourable, and the individual has no in-door employment to call the muscular powers into action, walking up and down the room is a good substitute. Artists and mechanics, especially those engaged in light employments, such as watch-makers, jewellers, mercantile clerks, and many other sedentary avocations, should, where practicable, have their dwelling house or lodgings at a considerable distance from their shop, or other place of business; and by this arrangement they will be obliged to take exercise in going and coming to and from their meals, &c. The numerous cottages and villas in the vicinity of our cities and great towns, have in this way contributed in no ordinary degree to elevate the standard of health among the middle classes of society. Exercise in the open air of the country, or that afforded by agricultural and horticultural pursuits, is recommended in preference to most other kinds of employment; and we think, as will be seen from other articles in our columns, that even working mechanics might be furnished with a portion of gardening work at no great distance from their city work shops, that would not only produce the most beneficial effects on their own health and that of their families, but likewise extend its benign influence over the community at large.

Cicero walked for an hour or two daily, and Hippocrates, Celsus, Galen, Pliny, and a host of others attained considerable longevity by taking active exercise in the intervals of their more sedentary and intellectual pursuits. The influence of exercise and muscular exertion on the mind, is truly astonishing; and numerous examples might be quoted to show that the mind has from this source derived a strength and power to meet and overcome difficulties which it would have previously shuddered to approach. Nay, even delicate females who have suffered shipwreck, or have been otherwise subjected to active and even almost incredible states of muscular activity, have evinced bravery, courage, resolution, and perseverance worthy of the character of the greatest heroes in either ancient or modern times. Dr Frombe and other systematic authors on hygeine, have quoted numerous cases. Among others, the French army, when retreating from Moscow, became depressed in courage, and enfeebled in body, and sunk nearly to the earth through exhaustion and cold; but no sooner did the Russian guns sound in their ears, or the gleam of their bayonets flash in their eyes, than new life seemed to pervade them, and they wielded powerfully the arms which a few moments before they could scarcely drag along the ground. No sooner, however, was the enemy repulsed, and the nervous stimulus which animated their muscles withdrawn, than their feebleness returned. Regular exercise is one of the best means of acquiring strength. But, as already stated, by far the greater number of diseases are the effects of inactivity; for by want of exercise, the body loses its proper supply of matter, and both its physical constitution and its vital powers are immediately affected, and in a greater or less degree impaired. The secretions of all kinds become deficient in quantity, and changed in their quality. The circulation of the blood proceeds with a languid current, and consequently both muscles and nerves are deprived of their due proportion of arterial blood to support the contractility of the former, and the sensibility of the latter, while the intellectual faculties proportionally share in the general decay.

EXFOLIATION; by this term is meant the separation of a dead portion of bone, the result of disease, from the living portion of the bone. When this happens, exfoliation is said to take place, a circumstance which frequently occurs in scrofula, where the bones are affected. See *Necrosis*.

EXPECTORANTS. Medicines which promote the expulsion of mucus or other matters from the trachea, and its ramifications. The greater number of this class of remedies are those medicines which in large doses act as emetics; such as squills, ipecacuan, gum, ammoniacum, &c., besides which all substances which excite irritation at the upper part of the windpipe, and cause coughing, act as expectorants; bleeding, blistering, and inhaling the vapour of warm vinegar, have also the effect of promoting expectoration. The expectorant most commonly used by the domestic practitioner is the syrup of squills, which is made by mixing one part of the vinegar of squills to five parts of simple syrup, with the addition of ten drops of tincture of the balsam of tolu, to each ounce, in which form it is most easily administered to children; adults may take the squill pills of the Edinburgh Pharmacopeia, which are composed of squills and ammoniacum; the dose is two pills at bedtime, or one pill may be taken four or five times a day. When the bronchial tubes are loaded with viscid mucus, which may be known by the wheezing breath and cough, one full dose of ipecacuan as an emetic should be given, and a mustard or fly blister applied to the chest, to expel the mucus and promote expectoration.

EXPECTORATION. This term signifies either the act of expelling mucus or other matters from the chest, or the matter so discharged; in the latter sense, we speak of bloody, purulent, or healthy expectoration.

EXPIRATION, is that part of the process of respiration in which the air or breath is pressed out of the lungs. See *Respiration*.

EXTENSOR. Those muscles by which we extend or stretch out any part of the body are called extensor muscles. The most remarkable of this class are those connected with the upper and lower extremities, and are antagonists of those muscles called *flexors*, which bend the limbs.

EXTIRPATION. When any part of the body is completely removed, either by cutting, instruments, ligatures, or caustics, it is said to be extirpated.

EXTRACTION is the operation of taking extraneous substances out of the body, such as stones from the urethra or bladder, and bullets and splinters from wounds, &c. The term is likewise sometimes applied to the removal of tumours, diseased teeth, the cataract from the eye, and some other operations.

EXTRAVASATION. This term is employed by surgeons when any of the fluids of the body are effused among any of the fasciæ or cellular substance, or into other cavities. For example, when blood is effused from a wounded or broken vessel on the surface of the brain, it is said there is an extravasation; or when blood runs down among the loose muscles of the eye and face from a blow, dividing some of the vessels, or when it is poured into any internal cavity, it is called extravasated blood, or extravasation has taken place. If the bladder has been over-distended, or diseased, and the urine escape, and find its way into the cellular substance, or if the bile escapes, owing to a wound or disease of the gall bladder among the viscera, in all these cases extravasation has happened.

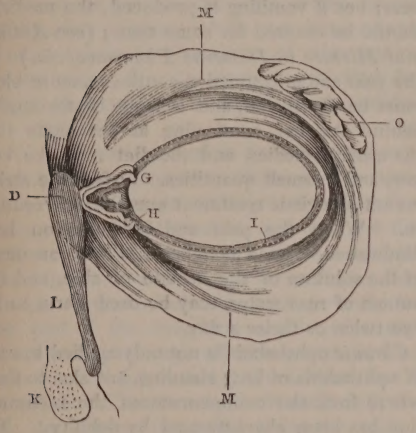
EYE BRIGHT or *Euphrasia Officinalis*. This pretty indigenous plant has long been a great favourite with domestic herbalists, as a remedy in almost all diseases of the eye. It has been used in form of infusion and decoction, both internally and externally, boiled with oil or lard into an ointment, and mixed with other herbs, and smoked as tobacco. It has fallen, however, into disuse, and has long been neglected by the faculty. We have tried it as an eye-wash, but seldom found it afford more relief than warm milk and water, and by no means equal to common tea, which often proves soothing to irritable eyes. In a late number, however, of Hufeland's Journal, which is now continued by his son in-law, Dr Osann, there is a paper, by Professor Kranischfield, on its virtues. It has been very extensively employed by him, and found particularly useful in catarrhal inflammation of the eyes. He has found its use to be very beneficial in other diseases, cough, hoarseness, earache, and headache, which have supervened in catarrhal affections. We would not wonder therefore, that this old favourite little plant should again find a place in the materia medica, and lay solid and well grounded claims to hold its rank among recognized remedies. If we should see good reason for altering our opinion on the virtues of this herb before our work reaches a second edition, we shall not be backward in acknowledging it.

EYE AND EYE LIDS. In describing the anatomy of these parts we shall do so briefly, and avoid technical terms and minute details, as far as possible; as our object is merely to enable the general reader to comprehend more readily and fully, that class of diseases of which we are about to treat, from previously knowing somewhat of the anatomical structure of the organs affected.

The eyelids are composed of the skin, under which we find the fibres of the circular muscle which closes the eyelids, and a thin cartilage attached to the orbit by a ligamentous tissue; their margins are thick, and furnished anteriorly

with the eye lashes, and posteriorly with mucous follicles. The eyelids are lined internally, or on their orbital surface, with a mucous membrane called the conjunctiva, which is reflected from them over the anterior surface of the eye ball; thus forming a partial covering to it also. This membrane is continued along the lachrymal ducts, or passages for the tears, into the lachrymal sac, placed at the inner corner of the eye; and so by the nasal duct into the nose. The conjunctiva is kept constantly moist by means of its own secretion, and also by the tears, which are secreted by the lachrymal gland, which is placed at the upper and outer part of the orbit, and above the conjunctiva, fig. 2.

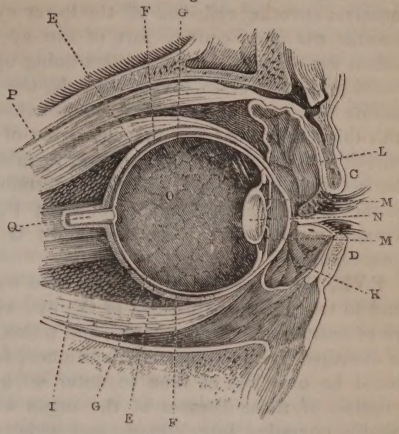
Fig. 1.



The globe of the eye, as it is generally termed, is not exactly spherical, for the clear part of the eye or cornea resembles a segment of a lesser circle let into a greater. This will be better understood by looking at the section of the eye in fig. 2. This clear portion of the eye or cornea, as it is termed, forms the anterior fifth of the globe, and is convex anteriorly, and composed of numerous plates or laminæ; it is let into the posterior part of the circle somewhat like the glass of a watch into the case. The sclerotic coat, or white of the eye, is dense and fibrous, forms the most external covering of the posterior four-fifths of the eye-ball. Internal to it is a dark vascular covering, termed the choroid coat of the eye. This proceeds as far forwards as the ciliary circle, and is then reflected back towards the vitreous humour, forming the ciliary processes. Immediately within the choroid we find the retina or nervous coat of the eye, which is seemingly the expansion of the optic nerve. This coat receives the picture of external objects, and from it impression is conveyed to the brain by the optic nerve.

The globe of the eye is divided into an anterior and a posterior chamber, by means of a circular curtain which is hung between them. This membranous curtain is movable, and in the centre there exists the opening termed the pupil,

Fig. 2.



which is enlarged or diminished according as the iris contracts or dilates. The iris is of different colours in different individuals, and hence the appearance of what we call black, blue, or hazel eyes. The iris is acted on by the stimulus of light, which is shown by the contraction of the pupil when a candle is brought near the eye, or when exposed to a strong glare of light. The anterior and posterior chambers of the eye communicate through the opening of the pupil.

The humours of the eye are—1. The aqueous or watery, which occupies the anterior chamber, and also passes into the posterior. The iris floats in this humour. Immediately behind it we find the crystalline lens or magnifying lens of the eye. It is a double convex lens, and is placed in the axis of vision, and in front of the next humour of the eye, which is termed the vitreous or glassy humour; this last is by far the largest in quantity, filling up nearly the whole of the posterior chamber. It is contained in a number of small cells, enclosed in a capsule termed the hyaloid membrane. We have been very brief in our description of these parts, as we could scarcely expect to convey as much instruction to the general reader by words, as we can through the medium of the accompanying woodcuts, and the following explanatory tables:

Table explaining the letters of reference on the woodcuts.—Figure 1st. Eyelids, and their appendages, as seen from within. I, margins of eyelids; M M, internal surface of eyelids lined with the conjunctiva; O, lachrymal gland dissected; G H, superior and inferior lachrymal ducts, which convey the tears into D, the lachrymal sac, from which they pass into the nose through L, the nasal duct, which terminates behind the inferior spongy bone K.

Figure 2nd.—Section of orbit and eyeball, shewing the relative position of the various coats and humours of the eye. C, upper eye-

lid; D, lower eyelid; E, sclerotic coat of eyeball; F, choroid coat; G, retina; I, superior rectus muscle, which raises the eyeball; K, conjunctival covering reflected off the lower eyelid towards the clear convex part of the eyeball, named the cornea; L, conjunctiva lining upper eyelid; M M, section of the iris; N, the crystalline lens; the dotted line communicating with this letter traverses the clear part of the eyeball or cornea, and the circular opening in the iris named the pupil, and finally terminates on the lens; O, the vitreous humour; P, the elevator muscle of the upper eyelid; Q, the optic nerves.

EYE, Diseases of. Under this head we intend to treat of those diseases of the eye which are of most frequent occurrence, and which can be managed by the domestic practitioner; for it would be only loss of time to enter on a description of those diseases of the organ which require operative interference, and which can only be treated by a dexterous and skilful surgeon. As most of the diseases of the eye and its appendages are the result of inflammatory action, we shall begin by describing the symptoms and treatment of that state, which occurs in different forms, which we shall class as follows:—1. Acute ophthalmia, or active inflammation of the eye. 2. Chronic ophthalmia, or chronic inflammation of the eye. 3. Purulent ophthalmia, or inflammation attended with suppuration.

The symptoms of acute ophthalmia are a sensation of heat and itching in the part, succeeded by pain and the feeling as if some foreign body, such as dust or sand, were lodged in the eye; the pain gradually increases; the conjunctiva, covering the eye-ball, is seen covered with numerous vessels carrying red blood, and it eventually becomes suffused, and of a bright red appearance. There is generally violent headache, and not unfrequently a considerable degree of general fever; there is a feeling of throbbing and burning heat felt in the part, and intolerance of light. There is often increased secretion of tears, but in some cases there is preternatural dryness of the surface of the eye, producing great pain.

The treatment of ophthalmia requires to be active, and consists in free abstraction of blood, both generally and locally, by bleeding from the arm, and cupping the temples, or scarifying the conjunctiva; leeches to the cheek or eyelids ought never to be used, as they produce great swelling, and serve to increase the irritation. Indeed, the best method of abstracting blood in this disease is to open the temporal artery, whereby we get sufficient blood to affect the circulation generally, and at the same time empty directly the vessels of the part; from eight to ten ounces of blood from the temporal artery will often produce more benefit than twenty from the veins of the arm. We ought next to apply warm or tepid fomentations to the eye, or should those not relieve the pain, which, however, they generally do, the part should be bathed frequently in cold water, or kept cool by means of lint dipped in cold water, and applied over it; and the room in which the patient is should be kept darkened. A dose of four or five grains of calomel, combined with five grains of compound extract of colocynth, or an aloetic pill, may be given to open the bowels, and followed by saline purgatives, combined with nauseating doses of antimony, about the eighth of a grain being given in every dose, which should be repeated at intervals of an hour to keep up a degree of sickness; but if vomiting is produced, the medicine should be omitted for some time; (see *Antimonial Mixture in Domestic Pharmacopeia.*) If the pain and inflammation continues, more blood must be abstracted, and a large blister applied behind the ear, continuing at the same time the other remedies, and the diet must be very low, and in small quantities. In fact, the strictest antiphlogistic treatment must be had recourse to. When the pain and inflammation have diminished, a wash composed of half an ounce of the solution of the acetate of zinc, and two ounces of rose water, may be used warm to the eye twice or thrice a day.

Chronic ophthalmia is not only applied to cases of ophthalmia of long standing, but also to those where from the commencement the inflammation has been characterised by debility. The disease is the same in kind, and differs only in the violence of the symptoms being less. There is a feeling of stiffness and uneasiness, or what is generally termed a weakness of the eye, an inability to bear much exposure to light, and increased secretion; the vessels of the conjunctiva are dilated, and the pain is less acute. The patient is often troubled with symptoms of dyspepsia and other symptoms of derangement of the digestive organs. The treatment consists in dividing the dilated vessels by scarification, and the application of astringent and gently stimulating eye washes, such as sugar of lead, or sulphate of zinc dissolved in rose or elder flower water, in the proportions of one grain to the ounce of fluid, and two or three drops of opium wine may be added to the same quantity; repeated blisters behind the ears, and above all, the employment of remedies to restore the digestive organs to a healthy state.

Purulent ophthalmia is a disease which is happily of rare occurrence in this country, but is very frequent and destructive in its effects in warm climates, as in Egypt and India. Its first symptoms are those of most violent acute ophthalmia, which, however, runs on rapidly to suppuration, accompanied by severe constitutional disturbance. In the first or acute stage,

the antiphlogistic treatment already recommended, when speaking of acute ophthalmia, must be had recourse to, but proportioned to the activity and violent form of the disease. In the second stage, where suppuration has commenced, and where we frequently find the skin cold and clammy, and great debility, gently stimulating lotions should be applied by means of an ivory syringe to wash away the purulent matter, and this should be frequently repeated; gradually increasing the strength of the lotion; that formed of the nitrate of silver or lunar caustic, in the proportion of half a grain to the ounce of distilled water, to commence with, and gradually increased in strength, will generally be found useful. In this form of ophthalmia, great attention must be paid to the state of the bowels and digestive organs, and in the latter stages we often require to give bark and other tonics, or even wine. But in every case of this disease, medical assistance should be procured as early as possible.

We shall now proceed to describe the symptoms of inflammation when it attacks the deeper seated parts of the eye. It frequently supervenes on conjunctival inflammation, and then the distinctive characters of the two diseases are lost. When it occurs primarily, the vessels, as they advance along the sclerotic coat towards the clear part of the eye, form a zone of a pink colour near the margin of the cornea, but between it and the cornea a distinct white line is interposed. The iris may be first affected, and then the disease is termed iritis; the pain is acute, accompanied by severe headache. The iris changes its appearance from gray or blue; it becomes of a greenish colour, and if formerly dark, it becomes of a dark red hue; the size of the pupil diminishes, and it is often irregular in shape; the iris projects forward into the interior chamber of the eye. If preventive measures be not used, it forms permanent adhesions to the neighbouring parts, or between its own free margins, so closing the pupil and destroying vision. Sometimes the vessels of the iris are so distended as to give way, causing effusion of blood into the anterior chamber, and in other cases pus is effused, causing the appearance termed by medical men hypopium. When the retina and choroid become affected, the patient is disturbed by frequent flashes of light, and vision soon becomes totally lost.

In the treatment of iritis, mercury, carried to the extent of slight salivation, and conjoined in the first instance with active antiphlogistic treatment, is deservedly held in high estimation, as it promotes the absorption of the effused lymph, and assists in subduing the inflammatory action. For this purpose, one or two grains of calomel, combined with a small quantity of opium to prevent it acting on the bowels, should be given every four hours, till salivation is produced. When the violence of the inflammation is somewhat subdued, the extract of belladonna should be applied over the eyelids, to cause dilatation of the pupil, and so prevent adhesions between its opposite margins or with the neighbouring parts. Blisters behind the ear are also very useful in the latter stages of the disease, with attention to the general health.

Exophthalmia—means a protrusion of the eyeball, and is sometimes the result of dropsy of the anterior chamber of the eye, from increased secretion of the aqueous humour; it is also a consequence of various diseases of the eye-ball, and the other structures within the orbit. If it be dependent on dropsy of the anterior chamber, temporary relief may be afforded by puncturing the lower part of the cornea, so as to allow the escape of the aqueous humour.

Ulcerations of the cornea are the result of inflammation, generally of that kind where pustules have been present. When these occur over the cornea and burst, the ulcer spreads, and if one or two be near each other, an opacity of the cornea, termed leucoma, is the result of their cicatrization. Sometimes, however, the iris protrudes through the ulcer, forming what is called hernia of the iris. The best application to ulcers of the cornea is the nitrate of silver, in substance; a finely pointed pencil of the caustic is used to touch the edges of the ulcer, the neighbouring parts of the eye being afterwards touched with a camel hair pencil, dipt in oil, to confine the action of the caustic to the affected part. In some bad cases, the ulcers extend in spite of all treatment, and the humours of the eye are discharged.

Pterygium—this term is used to denote a thickened and vascular state of part of the conjunctiva. The diseased portion is of a triangular shape, the base being at the circumference of the eye, and the apex towards the cornea.

The treatment consists in dissecting off the diseased part when it proceeds so far as to interfere with vision.

Diseases of the appendages of the eye. Entropion—signifies an inversion of the eye-lid, and may be caused by the cicatrization of ulcers on the conjunctiva, or other consequences of inflammatory action, or it may merely consist in inversion of the eye-lashes alone. In this latter case these bodies produce great irritation, and the cure consists in removing them one by one with a pair of fine forceps. In the former case, a small fold of skin is excised, so that when cicatrization takes place, the contraction consequent upon it restores the eye-lid to its natural position.

Ectropion—or eversion of the eye-lid, is the reverse of the former disease, and is caused by the cicatrization of wounds in the neighbourhood of the eye-lid, or extensive burns of the

face, of which we frequently see instances. The treatment is on the same principle as in entropion, a portion of the conjunctiva being excised so as to restore the eye-lid to its natural position. We mention these two diseases with the intention of intimating to those who are suffering from them, that they are remediable by surgical operations not attended with any great suffering.

Epiphora, or watery eye. This is the first stage or rather the first symptom of disease caused by stoppage of the lachrymal ducts which convey the tears into the lachrymal sac, or by obstruction of the duct which leads from that sac into the nose. There is at first a greater degree of moisture than usual about the eye, next there is a constant weeping of the affected eye; and if the disease be obstruction of the nasal duct, the tears accumulate, distend, and cause inflammation and formation of matter in the lachrymal sac, giving rise to a painful hard swelling at the inner corner of the eye near the nose, which is often attended with a degree of erysipelatous inflammation over the side of the face. If this state of matters be neglected, the skin ulcerates and the matter is discharged externally, forming what is termed lachrymal fistula. In the first stage, or that of weeping eye, the best remedies are, gently stimulating and astringent washes, and the occasional use of strong snuff to produce sneezing; but when accumulation of fluid takes place in the sac, the surest remedy is what is termed the operation for lachrymal fistula; it consists in opening the distended sac, and forcing the passage of the nasal duct, which is subsequently kept pervious by introducing small silver instruments, called styles, into the passage to dilate it gradually; the head of the style is covered with a little black sealing wax, and causes almost no deformity, for in fact it is scarcely noticed. The patient should make up his mind to submit to this operation as early as possible, when the progress of the disease points out that it is requisite, as it will save him much suffering, and will be more likely to be successful, than when performed in cases where fistulous ulcer has occurred, and where the delicate bones in the neighbourhood have in all probability suffered from the pressure of the matter.

F

FÆCES. This term is frequently used to denote the alvine excretions, or discharges by stool. It is likewise employed in chemistry and pharmacy, to denote the remains of substances after their more useful qualities have been extracted; and hence the direction to pour off or decant the pure liquor from the fæces.

FÆCULA. In consulting the older writers on medicine, or indeed those of less than half a century back, this term was applied to a substance obtained by bruising or grinding certain vegetables in water; and the fæcula is that part which after a little subsides, and falls to the bottom. Modern chemists, however, consider it as synonymous with starch. The fæcula of plants appears to be, according to the former opinions, which in fact later experiments have little altered, only slightly different from mucilage, for it differs from mucilage in no other respect than being insoluble in cold water, in which it falls with wonderful quickness. There are few plants which do not contain fæcula, but the seeds of gramineous and legumenous vegetables, and all tuberose roots, contain it in greatest quantity. See *Starch*.

FAINTING. The phenomena of complete fainting are similar to those of sudden death. A person about to be attacked with a fainting fit, experiences an indescribable distress or feeling of weakness; the eyes become dim and covered with a kind of film; there is a sense of ringing in the ears, the countenance and lips become pallid; the body is covered with a cold clammy sweat; the patient becomes insensible; the limbs become unable to support the body, and he falls to the ground as if dead; the breathing, and the beating of the pulse, are temporarily suspended; but it differs from complete death in that these functions sooner or later return, and life is restored, though in some cases fainting, or syncope, as it is termed, terminates fatally. Complete fainting seldom lasts above a few seconds, but in some cases it continues for several minutes. The causes of fainting are very various, such as violent passions of any kind, as excessive and sudden joy, grief, &c. Fainting may also result from the effects of severe pain, loss of blood, or any sudden alteration of the circulation, sensations produced by the sight of certain objects, some narcotic poisons, and certain odours. With regard to this last mentioned cause, though it is rarely the cause of fainting, its effects are curious, from the singular effects it produces on individuals, in whom it would seem to depend on some

peculiarity of constitution; there are well authenticated instances recorded in which individuals have fainted from the effects of the odour of some substances to which they had a strong aversion, without being even previously aware of its presence in the room.

Treatment of fainting. When fainting is purely nervous, there is seldom much danger. The patient should be placed in the recumbent position on the floor, with the head low, a little cold water should be dashed on the face and hands, fresh air admitted into the apartment by opening the window, all the clothes loosened, particularly about the chest and neck, and stimulants applied to the nostrils, such as hartshorn, aromatic vinegar, burnt feathers, &c. When fainting proceeds from other causes, such as bleeding, &c., means must be taken to suppress the discharge of blood, or to remove the exciting cause, whatever that may be, and to improve the general health by attention to the state of the bowels and the various secretions

FARINA. This term is applied to meal or flour, and the pulverous and glutinous part of wheat and other seeds, which is usually obtained by grinding and sifting; and hence the term *farinaceous* is given to all articles of food which contain *farina*, or meal, or flour. Chemical analysis puts us in possession of the essential differences between the albuminous portions of seeds, and other substances yielding farina, and these will be found under their respective heads, such as wheat, rye, oats, &c. Suffice it to say that all farinaceous substances are nutritive aliments.

FAUCES. The anatomical name which is given to the back part of the mouth, and commencement of the gullet.

FEBRIFUGE is a term which signifies to drive away fever, or a medicine that possesses the property of abating any fever, and at one time there were febrifuge powders, pills, oils, salts, and spirits, without end. The justly celebrated James' fever powder is of this class, and government ought long ago to have purchased the recipe, as every attempt to prepare a proper substitute has hitherto failed. The following is considered a very good febrifuge powder, viz., one dram of refined sugar, and four grains of emetic tartar, intimately rubbed together in a mortar, and then two drams of prepared chalk, gradually added, continuing the rubbing till the whole is uniformly mixed. This powder is given in doses of from four to six, or eight grains every three or four hours, and is perhaps the best substitute for James' powder. Antimonial wine, or the aqueous solution of emetic tartar, in divided doses, is likewise an effective febrifuge. The nostrum called Clutton's febrifuge spirit, is an imperfect ether which is sometimes given diluted in water as a common drink in fevers. A. M. Blymie recommends the following febrifuge wine in cases of intermittent fever, and vouches for its efficacy: Red cinchona bark, and muriate of ammonia, each four drams; white wine, one imperial quart; infuse during twenty-four hours. The dose is four ounces (one gill), in the morning, fasting, and the same quantity at bed-time. It should be continued until the above quantity is finished, nor should the treatment be suspended on the days when there is no fever. See *Ague* or *Intermittent Fever*, and *Typhus Fever*, or *Continued Fever*.

FEBRIFUGE SWEETENIA, OR SWEETENIA FEBRIFUGE, OR FEBRIFUGE BARK. This tree, which is a native of the East Indies, and greatly resembles the mahogany tree, yields bark of a red colour internally, has an astringent bitter taste, and yields its virtues to water. It is used as a substitute for the Peruvian or cinchona bark, although it contains no cinchonin. It is, however, a useful bitter astringent, and may be used in doses of from a scruple to half a dram of the powder three times a day, or a wine glassful of the decoction at the same intervals of time. It is useful as a tonic in the sequel of fevers, syphilis, and in intermittents. The extract may be used in diarrhœa as a substitute for, or in combination with catechu and kino.

FENNEL SEED; or the *Anethum Fœniculum*, OR COMMON, OR SWEET FENNEL. The seeds of the common, or sweet fennel, have an aromatic odour, and a sweetish warm taste, are carminative, stomachic, and diuretic, and are taken in doses either bruised, or in powder of from a scruple to a dram. The root likewise possesses the same qualities as the seed; and was formerly employed as a pectoral and diuretic, but the seeds being more powerful are most frequently used. There is another species of fennel, the *Fœniculum Aquelicum*, or Water Fennel, sometimes called Fine-leaved Water Hemlock, which grows wild in ponds and ditches, and possesses strong poisonous qualities. The roots have been sometimes eaten by children, and indeed by adults. The best remedy is clearing the stomach by a dose of sulphate of zinc, and then administering vinegar and water, and lemon juice. A sinapism should likewise be applied to the pit of the stomach. See *Hemlock*.

The officinal preparations are a distilled water of the seeds of sweet fennel, and an oil. The water is given in doses of from a tea spoonful to a wine glassful, and is an agreeable warm carminative, and stomachic. Two or three drops of the oil on refined sugar, rubbed up with a little water, is used in flatulent colic, &c. One dram dissolved in ten or twelve drams of rectified spirit, forms an essence of sweet fennel which is very convenient to mix with water, and a little syrup or sugar, as a

pleasant carminative. The virtues are similar to those of the same preparations of peppermint.

FENUGREEK SEED. The *Trigonella Fanum Grecum*, which yields this seed, once more generally employed in medicine than at present, is a native of Greece and the south of Europe. The seeds have a strong disagreeable smell, and an unctuous farinaceous taste, with a slight bitterness. The powder, mixed with equal parts of barley, or oat meal, and boiled with milk, are made into poultices; or even the seeds, boiled whole and applied, accelerate the formation of pus in tumours. They are likewise used in the diseases of horned cattle, but we are seldom at a loss for convenient substitutes.

FERMENTATION. Certain changes which animal and vegetable substances undergo, when reduced to the moist or liquid state by water. There are four kinds of fermentation. 1. The saccharine; when the change terminates in the formation of sugar, as that of starch. 2. The panary, as that of flour, forming bread; or the vinous, as that of grapes, forming wine, evolving alcohol. 3. The acetous; when the result is the formation of acetic acid, or vinegar. 4. The putrefactive; generally of animal substances, evolving ammonia.—*Hoblyn.*

FERN, *Asplenium filix mas*, or MALE FERN. The root of this plant was introduced into the materia medica, in consequence of its reputed power in expelling different kinds of worms from the intestines, and particularly the tape worm. The secret was thought of such importance, that the French government purchased it of a Madame Nonfer, in whose hands it had acquired so great celebrity. The method of using it is the following. "After the patient has been prepared by an emollient clyster, and a supper of panado, with butter and salt, he is directed to take in the morning, while in bed, a dose of two or three drams of the powdered root of the male fern. The powder must be washed down with a draught of water, and two hours after a strong cathartic, composed of calomel and scammony, is to be given, proportioned to the strength of the patient. If this does not operate in due time, it is to be followed by a dose of purging salts, and if the worm be not expelled in a few hours, this process is to be repeated at proper intervals." Of the success of this or a similar mode of treatment, in cases of tinea, or tape worm, there can be no doubt, as many proofs in this country afford sufficient testimony, but whether the fern root, or the strong cathartic is the principal agent in the destruction of the worm, may admit of a question; and the latter opinion, Dr Woodville believes, is more generally adopted by physicians. It appears, however, from some experiments made in Germany, that the tape worm has in several instances been expelled by the repeated exhibition of the root without the assistance of any purgative. The female fern is also deemed anthelmintic, and capable of destroying worms, and its powdered root considered as efficacious in the expulsion of tape worms as the root of the male fern.

FETID. A term signifying putrid, or ill smelled.

FEVER. The fevers most common in this country are the intermittent fever, or ague, and the remittent fever, both of which will be found treated of at considerable length under their respective denominations. The other kinds of fever, and fever in general, of which we now propose to treat in this article, is a disease, according to Cullen and other nosologists, characterised by an increase of heat, an accelerated pulse, a foul tongue, and an impaired state of the functions of the body. Continued fevers have no intermission, but exacerbations come on twice in one day. The genera of this order of fevers are 1. *Synocha*, or inflammatory fever, known by increased heat, pulse frequent, strong, and hard, urine high coloured, senses not much impaired. 2. Typhus, or putrid tending fever, which is contagious, and is characterised by moderate heat, quick, weak, small pulse, senses much impaired, and great prostration of strength. Typhus has been again subdivided into four varieties, viz. 1. Typhus with petechia. 2. Typhus mitior, or the nervous fever. 3. Typhus gravior, or the putrid fever; and, 4. Typhus icterodes, or the yellow fever. This last is seldom or never met with in this climate, but will be found described under its own proper head. These distinctions are in a great measure arbitrary; but as Dr Uwins justly observes, nothing can perhaps be nearer nature than those traced by our nosologist, Cullen. It may be observed that he in some measure abandons his own postulate of contagion, as an abstract characteristic of one kind of fever, by stating that a disorder may be, in the commencement, a *synocha* (or inflamatory fever), which is not contagious, and at the conclusion a typhus, which is contagious. When an individual is seized with continued fever, there is no danger of contagion to the attendants; but owing to variety of causes the disease may speedily pass on from one stage to another, and the patient that was at first seized with simple continued fever, die of typhus gravior, or putrid fever. The circumstances or causes which contribute to produce these changes are various, some of them within our observation, and partially under our control, and others entirely beyond either the one or the other. Much, however, depends on the subject of the attack; one man may be favourably circumstanced for resisting the disease, while another may be a bad and unfavourable subject. Any thing that has a tendency to weaken and depress, as excessive apprehension,

exhausting labour of body or mind, the debility brought on by mercury, bad food, and foul air, grief, care, and other depressing moral causes, all these are circumstances which, generally speaking, render fever exceedingly dangerous. Inhabitants of towns are generally worse off in this respect than those who live in the country; a fact which has been well established in the seasons 1837-8 in Glasgow and other cities and great towns.

The general symptoms of continued fever, or of typhus mitior, or mild fever, and typhus gravior, or contagious putrid fever, may be divided into the precursory, actual, and manifest symptoms. The first are more or less prostration of strength, a feeling of uneasiness without decided illness, an unusual paleness, a sensation of coldness and perhaps some shivering, a sense of weight about the head, indifference to objects of business or pleasure, troubled sleep and frightful dreams, slight nausea, foulness of tongue, and loss of appetite. These symptoms may continue from a few hours to three or four days. In other cases the phenomena of typhus set in at once, and with an awful rapidity. The pulse is full and bounding, the skin hot and dry; there is confusion of thought, pain in the head and limbs, and even delirium; the urine undergoes much change, being sometimes pale and scanty, and at other times large in quantity and high coloured. The patient frequently sits up, and moves about the curtains as if looking for some one concealed behind them, and frequently asks who is it that is gazing at him from the foot or some other quarter of the bed. This rapid advance of the disease, from the latent to the actual, or manifest phenomena of the disease, occurs chiefly in cases where a severe epidemic is prevalent, or where the miasm of fever exerts its influence over bodies of men closely cooped up together, as we see exemplified in camp and jail fevers. Whether the medical attendant has been induced, by the apparent inflammatory symptoms of a hot skin and full bounding pulse, to bleed, a practice which, as will be afterwards stated, is rather of doubtful propriety, the pulse, generally about the third or fourth day, begins to alter, and the simulated appearance of inflammation disappears; to this a train of nervous symptoms succeed; anxiety, restlessness, delirium, noise in the ears, with an augmentation of fever towards the evening. In the morning the patient feels better, and this is almost always the case; for there seldom occurs a case of typhus without morning remissions, and this did not escape the observation of our celebrated Scotch nosologist already quoted. In some cases the symptoms are aggravated on alternate days, so as to bear some resemblance to double tertian. The exhalent vessels of the skin are sometimes in a state of great activity, and the patient sweats profusely almost from the commencement of the disease. The skin, however, remains dry in the greater number of cases, and this often continues through the whole disease up to its termination. With respect to the appearance of the petechiæ or spots on the skin, they may occur at an early period, or not until towards the close of the fever. The appearance of petechiæ or purple spots has one particular value, as being a symptom most commonly connected with fevers of an essential type, and rarely with those of a simple inflammatory character, or where the fever is symptomatic of local disease. Thus, we very seldom meet with these spots in the fever which accompany inflammation of the brain, lungs, or stomach and bowels. On the other hand, where the inflammation of these organs are secondary, and supervening on typhus, petechiæ are exceedingly common. To these succeed another train of symptoms as the disease advances; there is more or less stupor, the patient sighs, frequently answers questions briefly and impatiently, the eyes are glazed and filled with a lachrymal secretion, the nostrils obstructed with adhesive mucus, which the patient frequently attempts to remove, and if he has been accustomed to snuff taking, he goes through the ceremony of taking a pinch; these are symptoms frequently observable as very unfavourable. Thus likewise deafness without any apparent affection of the ear, the lips are dry and chapped, and the teeth and gums covered with dark crust or sordes. When asked to put out the tongue, the patient, as if unable to thrust it out fully, moves it slightly forwards, and this is occasioned both by its dry state, and the debility of its muscles. The state of the tongue, however, in typhus is not a true index of the state of the stomach and intestines. The tastes and desires of the patient for certain liquids, &c. is very various; in some cases there is thirst and desire for hot, and in others for cold drinks, while in other instances the patient drinks very little, and never complains of thirst, although a small quantity of liquid will be taken if offered, and occasionally wine is relished, while at other times the same patient will refuse it. The condition of the skin, too, varies, being sometimes bedewed with profuse clammy perspirations of a peculiar odour, but in the greater number of cases it is dry and harsh; again there is sometimes diarrhæa, flatulence, and tenderness of the abdomen, which is unusually soft and flaccid, bearing pressure without pain or uneasiness. The urine, which engrossed so much attention in former times, cannot be looked upon as diagnostic in typhus, as it assumes different appearances as well as variations in quantity, and in bad cases, it as well as the stools when the patient is not well watched, is passed involuntarily. This at first occurs during the patient's sleep, but as the disease advances it is passed unconsciously. Retention of urine on the other

hand is no uncommon occurrence. As the disease approaches its termination, the patient assumes a new posture in bed, and lies almost entirely on his back, with the lower extremities separated, and the trunk sliding down in the bed from debility. During brief and refreshing slumbers the eyelids are only half closed, the eyeballs turned upwards; when awake, the eye is dull, without meaning, and of an echymosed or extravasated appearance. Delirium, feebleness of pulse, and prostration of strength increase, liquid fæces are discharged involuntarily, the belly is tympanitic or flatulent, and the very distressing and prophetic symptom of hiccup comes on. There is also frequently present at this closing period of the disease, hæmorrhagic discharges from various parts of the body, nose, stomach, bowels, and urinary organs; and if the patient holds out for any considerable length of time, bed-sores form on the back and loins, frequently surrounded by an erysipelatous margin, and have a tendency to a gangrenous termination. The scene is now about to close, the patient gets weaker and weaker, the extremities cold, the pulse thready, irregular, and indistinct, the hiccup increases, and there is sometimes regurgitation. The eye is now glazed, the pulse sinks, the jaw is fixed, the face Hippocratic, stupor obtains the sway, and the tracheal rattle concludes the scene of the actual and manifest phenomena of typhus.

We have thus furnished what may be regarded as a pretty correct and distinct account of the symptoms and phenomena of ordinary typhus; but we are far from deeming it complete, as the symptoms in this disease are as remarkable for their variety, as are the states and circumstances of the individuals who fall victims to its virulence, or who rally and recover often in the most untoward and unpromising states and appearances.

Causes. In enumerating the most prominent of the predisposing causes, we would only be repeating what we said respecting the case of those who are most unfavourably situated for resisting its attacks. Plethoric fullness, high action, sthenic diathesis, or that state of body which disposes to inflammatory diseases, all doubtless predispose to inflammatory fevers, while the low nervous or typhoid kind, are induced by a weak and delicate habit, depressing passions, poor living, and whatever tends to debilitate. Among the principal exciting causes may be enumerated contagion, infection, intemperance, famine, filth, confined air, depressing passions, above all perhaps, variations in atmospherical temperature. Violent exercise, constipated bowels, and probably whatever has power, under certain circumstances of the patient, to engender fever.

Critical days. The existence of critical days may be fairly questioned, yet one fact, however, appears to be pretty generally admitted, viz. 'that all fevers are disposed to assume progressively the quotidian, tertian, and quartan type, (see *Ague*, or *Intermittent*, and *Remittent Fever*;) so that the disorder shall have lasted some time; two whole days shall intervene between the terminating tendency, as the 14th, 17th, and 20th. Even here, however, there arises a difficulty; some considering the 21st, others the 20th the critical day. It is probable that fevers with us are different in respect of crisis, to what they were with the ancients.'—*Uwin.* Some of the moderns have argued in favour of these critical days, and much ingenuity has been exercised in the attempt to account for them, but a great majority of writers, and those the most respectable for their accuracy, have not been able to observe any thing of the kind. We may probably reconcile this discordance of opinion, by supposing that the fevers which were described by the ancients, were fundamentally of the intermittent type, and that the critical days were the periods of the accession of the paroxysms, when the disease either on the one hand terminated fatally, or when by the efforts of re-action it underwent some change, which induced it to assume a favourable aspect.

Contagion. An uncertainty has long existed respecting the nature of febrile contagion, and the mode of its production. Dr Perry of Glasgow asserts, that 'typhus fever arises from contagion and contagion alone,' and moreover avers, 'that in all cases there is a desquamation of the cuticle, and the contagion is contained in the particles of cuticle thrown of;' also that 'ventilation, pure air, cleanliness, &c. have no influence whatever on the disease.' Dr Perry says again, that 'the disease attacks individuals only once.' Dr William Weir has, however, so satisfactorily exposed the fallacy of such assertions, that nothing remains for us to do, but only to warn our readers, who may not have had an opportunity of seeing Dr Weir's triumphant exposure, of the danger of being misled by such gratuitous assertions, not one of which is even supported by a shadow, much less the substance of truth. The propagation of such doctrines by a man of Dr Perry's standing in the profession, might produce serious practical evils to society and individuals, and this we hope will be received as our only apology for noticing them. But to return to more sober statements respecting febrile contagion. It may be asked whether it be like the contagion of small pox, generated only by a person previously infected, or whether it may not be actually produced by impure air, especially when tainted by the miasms of decomposing animal matter, or the exhalations of the living body when deprived of proper ventilation, although not actually labouring under disease. Although a work of this description is not perhaps the most proper place for contesting this controverted point, we

think it right to lay before our readers the commonly received opinions on the subject. 'The medical profession,' says Dr Weir, 'is nearly equally divided upon this question, one party considering typhus fever as arising from a contagious animal poison generated in the bodies of the sick, and another party believing it to be an epidemic or pestilential fever, depending upon a certain unknown state of the atmosphere prevailing in certain localities, and incapable of spreading beyond these localities. If it be a contagious disease, it most assuredly presents phenomena and exhibits peculiarities extremely different from other diseases allowed by all parties to be contagious. Contagious fevers are governed by certain laws, but typhus fever obeys none of these laws, but is obedient to certain other laws apparently of an opposite nature; it seldom spreads in a pure atmosphere; we do not frequently hear of its going from house to house in any well aired portion of a city, as it would unquestionably do were it contagious. As an epidemic it is chiefly confined to the ill-ventilated habitations of the poor, and to the lowest, filthiest, and most crowded parts of large towns. It attacks chiefly the ill-fed, the ill-clothed, the debilitated, and intemperate. We seldom hear even of two persons being affected among the better ranks of society; although parents nurse their children and children their parents, and sisters their brothers, and are daily and hourly exposed to the contagion; although they are employed in turning the patient in bed, in assisting him in all his movements, in changing his linens, and although they sometimes sleep in the same apartment, and must inhale the very effluvia from the patient's body, and the very air thrown from his lungs. There are, however, facts which we would bring forward in proof of the existence of a certain quantum, if we may be allowed the phrase, of contagion operating upon the human body under certain circumstances, and producing typhus fever which has terminated fatally. Every medical man, and indeed reading and well informed individuals who are not of the profession, know with what rapidity typhus fever is propagated in the country and even mountainous districts of Ireland, and (although less frequently), in the highlands of Scotland, in both of which situations, they 'breathe the mountain's air, free from the city's smoke;' the disease, nevertheless, progresses among the thinly scattered inhabitants. We admit, indeed, some of their houses are not over cleanly, neither are their persons, bed, or body clothes; but few, very few indeed, are without the ventilators of holes in the roof, in the side walls, and doors; and in Ireland we frequently see typhus of the worst description in a house without door, or window, or chimney, but with three large open holes that answer the same purpose. Here, however, the predisposing causes were to be found in the filthy bed and body clothes, and in many cases not only scanty diet, but an almost total deprivation of the necessaries of life. With respect to these controverted points, and we are not wedded to any party but open to conviction, we conceive there can be no doubt of the production of a proper contagious matter from the bodies of those previously infected, although it cannot be collected in a material form as in small pox; and we agree with Dr Bostock, who thinks it probable that putrid animal matter, however disagreeable it may be to the senses, does not produce any specific disease, while on the contrary, with respect to confined exhalations from the body, the balance of evidence seems to favour the opinion that they possess the power of producing a proper contagious fever. A considerable part of this uncertainty has obviously arisen from the invisible and impalpable nature of febrile infection, and at the same time from the difficulty which there is in ascertaining what share the predisposing causes have in the ultimate effect; for according to both opinions their intervention is necessary, although they act a different part, and differ in their relative importance. This febrile contagion, or infection, acts with very varied force, regulated by the circumstances of the individuals that intrude within its circle, which we will acknowledge is very limited and circumscribed in its locality, and its strength greatly reduced by introduction into a spacious well ventilated apartment, and this reduction in strength is likewise greatly aided by frequent changes of bed and body linen, and likewise by chemical agents, such as chloride of lime, &c. We know no subject which it so readily selects as a victim as one of a timid and apprehensive disposition; and no person should ever enter the apartment of one in typhus fever, we mean typhus gravior, who is the subject of these fears and apprehensions.

According to the best authorities on the contagious nature of the disease, the mode in which typhus is propagated, or in which contagion is conveyed, appears to be two-fold; it is either by being diffused through the air, when it is received into the lungs, or by the contact of the body of the patient, or of the substances which touched his body, and imbibed the contagion from it. Of these, the latter is found to be the most certain and the most virulent, and there are many facts which seem to prove that the matter retains its virulence for a long time after it has been thus deposited. On the contrary, the sphere of contagion, as propagated by means of the atmosphere, appears to be very limited, so that except the body be predisposed to receive it, there is no danger of acquiring the disease from this source, unless we approach within a very short distance of the infected individual. The prevention of contagion, or its

dissipation, is matter of serious importance. Indeed, one of the greatest efforts of the medical art in modern times, consists in the means that have been devised for preventing or destroying contagion; so that when we are able to command external circumstances, and the patient is willing to submit to proper directions, the disease may be disarmed, if not of all, certainly of some of its greatest terrors, so as in a great measure to subdue or greatly dilute the poison of contagion, and thus render it comparatively innoxious. But this part of our subject will be found more fully explained in the article *Contagion*, to which we refer.

Prognosis. With respect to the prognosis, or the favourable and unfavourable symptoms of the disease, there is often great variation. Some patients will have almost all the bad symptoms we have detailed in the preceding history of its phenomena, and yet recover; but in general, the prognosis under such circumstances is very unfavourable. The worst symptoms are those which exhibit all the phenomena of nervous derangement, such as delirium, coma, subsultus tendinum, (or starting of the tendons), and spasms; and the same character may be given to bad petechiæ, hæmorrhages from the intestines, and urinary organs. In cases presenting these symptoms, the prognosis is most unfavourable. The most malignant form of typhus, is that which arises among bodies of men closely crowded together, as we see in the camp, jail, and hospital fevers; and in these cases the disease appears to be the result of an excessive and highly concentrated dose of the poison of typhus. The experiments of M. M. Gaspar, and Majendie, on the injection of putrid substances into the veins of animals, afford an apt illustration of this fact, as they observed that the greater and more concentrated as was the dose of putrid poison, the more closely did the consequent fever resemble bad typhus. And here we may make a few remarks on petechiæ, or purple, or reddish spots, which sometimes appear in this disease. Two opinions exist among the faculty regarding these petechiæ; one that they are analogous to the exanthematous eruptions, or in other words, those eruptions which appear in the second and third stages of certain fevers, denominated eruptive, and as it were an attempt of nature to relieve the internal disease by external revulsion. The other view of the case is, that they are the effect of a weakened state of the capillary vessels of the skin, accompanied by a dissolved condition of the blood, and that they are, in fact, a kind of passive ecchymosis, or extravasation. Both views we think are right, both being included in the facts of the case, as doubtless these petechiæ are sometimes of an exanthematous or eruptive character, such as the eruption in scarlet fever, and other diseases of the order. They appear at an early period of the disease, when there is but little debility, and when there are no other signs of a morbid condition of the fluids, and are sometimes productive of relief, forming elevations, desquamating, or peeling off like the eruptions in scarlet fever or erysipelas; these facts prove that they indeed bear an analogy to the eruptions to which we have now alluded; but on the other hand, we may find them without any of these characters, and presenting a livid or black colour. This dark or blackish colour is most frequently observed in those cases of typhus which occur on board crowded convict ships on the voyage to Australia, especially towards the termination, when a tendency to scurvy is beginning to make its appearance. These black petechiæ are therefore a most unfavourable symptom; the livid are less dangerous, and the red are the most favourable, though neither are entirely devoid of danger. The black petechiæ or spots, appear later in the disease than the red, and doubtless indicate a morbid alteration in the fluids.

The favourable symptoms, or prognosis, are; the pulse ranging under or not exceeding 100 beats in a minute, or its becoming soft or free, and open as it is called by some; the urine depositing a brick dust like sediment; the tongue becoming moist at its edges; regular and warm diaphoresis, or mild general moisture of the skin, as opposed to partial and clammy perspiration; local tendencies in fevers, such as scabs from the corner of the mouth; the countenance retaining the full and uniform appearance of health, and respiration being free; and even deafness in some fevers is regarded as a favourable symptom; retaining the ordinary position in bed, and seldom lying on the back, or sliding down from the pillow.

Treatment of fever. Though the severer forms of fever should never be treated except by a professional man, still as in some cases such aid cannot possibly be procured at the first, we shall give a few brief directions, premising however, that it is almost impossible to prescribe properly, seeing that peculiarities and characters of the disease differ exceedingly in different individuals, and during different epidemics. During the first stage, general blood-letting is a very questionable remedy, except where the person is robust and healthy, and has been living in the country, or where there is evident symptoms of local inflammation. In all cases we would prefer the application of leeches to the temples, for the purpose of relieving the headache which generally ushers in the disease; and if there is much nausea and oppression at the stomach, this may be followed by an emetic, composed of twenty grains of ipecacuan, and one grain of emetic tartar, dissolved in warm water; then the patient may be placed in a warm bath, or have his feet bathed, and two

hours afterwards the following pill may be given:—

Take of Calomel three grains,
Compound Colocynth Extract, four grains.

If there be still much headache or confusion of intellect, a fly-blister should be applied to the nape of the neck, and cold vinegar cloths to the head after it has been shaved; if there is much flatulence, an enema containing a large dessert spoonful of assafœtida may be administered. A table spoonful of the antimonial mixture of our domestic pharmacopeia may be given every two hours, (unless it produce vomiting,) until gentle perspiration is produced. If the fever is not cut short by these means, the bowels must be kept open by means of gentle aperients and enemata, the feet kept warm, and cold applied to the head; when there are great restlessness, and watching, and loss of sleep, an opiate may be given, the bowels having been cleared out previously, but this should always be done with great caution, as it may increase the delirium; when diarrhœa or dysentery occur, attended with tenderness over the abdomen, leeches should first be applied, followed by mustard blisters, and then a starch injection, containing laudanum or some other opiate preparation, administered. If hemorrhage occurs from the bowels, diluted sulphuric acid, in doses of ten or fifteen drops, may be given twice a day, either alone or with the decoctions of Peruvian or oak bark, or logwood. When symptoms of debility come on, stimulants should be given, at first cautiously, as small doses of wine, (as a dessert spoonful every two hours or even less at first,) and gradually increased when symptoms of coma supervene, and the breathing becomes slow and laboured. Blisters must be applied over the head, and strong camphor mixture, either alone or with a small proportion of sal volatile drops, should be exhibited, the wine being continued at the same time, and injections of wine and beef tea thrown up by the bowels. If there be inability or disinclination to swallow, pay attention at the same time to the state of the bowels. These general directions apply principally to typhus fever, and are brief, for the reasons already given. In that kind of fever termed inflammatory, or in simple continued fever, occurring in persons previously healthy, and living in a pure atmosphere, general blood-letting may be had recourse to pretty freely in the first instance, followed by the treatment recommended as proper in the first stage of typhus; but in continued fever we should always keep in mind that it may eventually end in typhoid symptoms, and therefore we should never deplete largely without a good reason for so doing.

FIBRIN. This term is applied to a peculiar compound organic substance, existing both in vegetables and animals, and is eminently nutritious. It is of a whitish colour, without taste or smell, tough and elastic, but when dried, hard and almost brittle. It is not soluble in water or in alcohol, and the concentrated alkalies form with it a kind of fluid viscid soap. It is dissolved even by the weak and diluted acids, but it undergoes some change by which it acquires the properties of jellying, and being soluble in hot water. By maceration in water it becomes putrid, and is converted into adipocere. By long boiling in water it is rendered tough and corneous, and when decomposed by heat or nitric acid, it is found to contain a large proportion of nitrogen. It forms the basis of the muscular fibre, and is contained in the crassamentum of the blood, and the gluten of wheat does not seem to differ from it in any important property. The most superficial knowledge of chemistry will then lead the reader to see, that on this property predominating either in animal or vegetable substances, will their value in a great measure as an article of diet be determined. See *Diet.*

FIG or the *Ficus Larica.* The common fig, which is the fruit of the *F. larica*, is a very nutritious and mucilaginous fruit, and when dried, in which state it is sold in our shops, is pleasant to the taste, wholesome, and nutritive. Considerable progress has been made in the cultivation of the fig in Great Britain, but those produced are far inferior to the oriental figs. Indeed no art can completely supply the place of climate, although much may be, and has already been done to render the fig tree prolific. Figs are an ingredient in the composition of the compound decoctions of barley, and in the electuary or confection of senna. They are used externally as a poultice to suppurating tumours, and when roasted are applied to gum boils. Figs are nutritive, aperient, and demulcent, and may be used as a dessert, and a few taken as a lunch with great advantage by those of a costive habit. From half a dozen to a dozen of good figs, may be taken daily with advantage by delicate pregnant females, where they have no tendency to produce acidity or flatulence. We have known the most marked benefit derived from their use in these cases, and we have often regretted their being so little employed as a substitute for less harmless drugs, by many who could not fail of deriving benefit from this mild, nutritious, and aperient fruit.

FIGWORT or PILEWORT, the *Ranunculus ficaria* of Linnæus. This plant, as one of the names implies, was long celebrated for the cure of piles, but has fallen into disuse. There is no doubt, however, when boiled into poultice, with equal parts of linseed and oatmeal, that it affords relief in cases of itch and pain at the anus.

FILBERT and HAZEL NUT, or *Corylus avillana.* These nuts afford a considerable por-

tion of nutriment, and on pressure yield a mild bland oil. If eaten in moderation, they are a much safer article of diet, than many other nuts of a more oily character. When blanched or freed from the brown cutis or skin, the kernel may be pressed so as to extract the oil, and the cake remaining may be used as bread, or fried and ground, mixed with other farinaceous substances, so as to form bread; and this plan has been pursued in times of scarcity, when no other bread could be procured. We have eaten cakes formed in this way, that would not for either taste or flavour have shunned comparison with bread in every day use. Indeed, in places where they abound, they might, after being deprived of the oil, be turned to good account as an article of diet. Nuts, however, abounding in oil, should be eaten in moderation, as they are by no means easily digested. The oil of the hazel nut may be employed for the same purposes as the oil of sweet almonds, and is very useful both in medicine and in domestic economy.

FILTRATION. In various articles we have occasion to refer to this process, by ordering such a preparation to be filtered or strained. It is right, however, that the meaning of these terms be rightly understood. Filtration and straining are used for the purposes of separating fluids from solids, and they differ only in degree, and are employed either when the powder or other substance does not subside at all, or too slowly, or imperfectly, for decantation or pouring off. The cases in which filtration are required in domestic medicine are few, and the operation is generally performed by means of unsized or blotting paper, and sometimes it is necessary, or at least it is advisable, first to strain the liquor, and afterwards filter it. Thus, tinctures made of spirits may be first strained through a linen cloth, with expression, that is, with a considerable degree of force or squeezing, so as to press out the spirit from the materials, and this strained liquor may be then passed through the filter or blotting paper placed in a funnel. Previous to this, however, the clear tincture may be poured or decanted off, and the bottom or lower part only will require filtering, and in most cases decanting, straining, and then allowing the strained liquor to remain quiet till the impurities subside, and then decanting, will answer every good purpose of filtering, even in tinctures. All acid or acrid liquors should be filtered through the unsized paper, in a glass or Wedgewood funnel, as the acid, &c. is ready to act on a metal one, as in the case of the elixir of vitriol, &c., &c.

All decoctions and infusions should only be strained through a linen or flannel bag, the former while hot, and in most cases infusions will require nothing more than the common filter of a tea or coffee pot. All fatty matters ordered to be melted in making ointments, such as suet, lard, oils, and wax, are to be strained, while hot, through a flannel bag or cloth, or even a towel. By attending, however, to the directions given for the preparation of the different tinctures, &c., there will be little difficulty in understanding this simple process. Say that a tincture has stood for some days, (although they should be frequently shaken for the first five days), there will be no difficulty in pouring or decanting off by far the greater part of the pure tincture, and then only a small portion need be submitted to either straining or filtration. The filtering of water is a matter, however, of great importance, especially at sea, and many ingenious inventions have been resorted to. We consider a common soft free-stone, hollowed out in the form of a wash hand basin, about one inch or so in thickness at the bottom, as one of the best water filters. Water may be filtered in large quantities by this plan, or by artificial basins of nearly equal parts of fine clay, and coarse sand. In large quantities it may be easily purified per *ascensum;* the purified liquors or impurities thus taking opposite directions. The simplest apparatus of this kind, says a late popular writer, is a barrel divided perpendicularly by a board perforated with a row of holes along the lower edge. Into each side as much well washed sand is put as will cover these holes, an inch or two, over which must be kept a layer of pebbles, to keep it steady, and with this preparation the apparatus is now fit for use. Water poured into the one half will sink through the sand, from that side pass through the holes in the division to the other, and rise through the sand, in the other half from which it may be drawn by a stop cock. At sea, however, where water is long kept, it is greatly improved by dropping slowly through stone, and such a distance between the stone and receiver preserved as will allow of the air passing through, and being partly absorbed by the water. There are a number of filters advertised, but the expense is a serious objection against their general adoption. In filtering water, however, especially water that has become putrid by long keeping at sea, it should be previously mixed with charcoal, and if the filtering machine is of such a construction as to prevent the atmospheric air passing through the water during filtration, this may be done by pouring the water from a height, from one vessel to another.

FIR. There are several species of fir that yield articles of the materia medica. The Scotch fir, or the *pinus silvestris*, yields the common turpentine, rosin, oil of turpentine, and black pitch. The larch, or *pinus larix*, Venice turpentine and oil of turpentine. The hemlock fir, or *pinus balsamea*, the Canadian turpentine, or balsam of Canada; and the spruce fir, or *pinus abies*, common frankincense and

Burgundy pitch. The Chia, or Cyprian turpentine, is from the *pinus picea*. All these substances agreeing in their nature and effects, and only varied in degree as to quality and consistence, will be found described under their respective designations. See *Turpentine*. The tops of the spruce fir, when fermented, afford a pleasant beer, possessing powerful antiscorbutic properties.

FIRE. Without entering on any scientific discussion on the meaning of this term, we shall rest satisfied with stating that it is an active element, comprehending light and heat; and only at present known by its effects. See *Burns, Caloric, Heat.*

FISH. As the various kinds of fish are used as articles of diet, we deem it necessary, without entering on each particular species, to say a few words on some of those principally used as food, and to mention in what they differ, as regards nutriment, from the flesh of warm blooded animals and vegetable food. Fish seems to hold a middle place between the above mentioned species of aliments; that is to say, that although not so nourishing as beef or mutton, it is more so than vegetable food, and is sufficiently so for all the purposes of active life; a larger quantity, however, being required for that purpose, and the appetite returning sooner after its use than when the flesh of warm-blooded animals is eaten. Fish also, from giving rise to less excitement during digestion, forms a useful article of diet for patients recovering from acute diseases; but though generally speaking, it is light and easy of digestion, it is sometimes found to disagree with the stomachs of dyspeptics. The kinds of fish which are least stimulating and easiest of digestion, are those which are termed white fish; as the turbot, cod, whiting, haddock, flounder, and sole; the four last mentioned are preferable for invalids, as they are the most digestible. Fish, when good, presents a white opaque and flaky appearance after being cooked, but when it has a blueish tinge, or a degree of transparency after being well boiled, it is a sign that it is either of inferior quality or out of season. Salmon and herring are perhaps the most nutritive kinds of fish which are eaten, but from containing a quantity of oily matter, and from producing a degree of excitement during digestion, they are improper for invalids or dyspeptic patients. Salmon, when eaten at seasons when the fish is unfit for food, has been known to produce serious disease. In many cases cutaneous eruptions follow the use of fish as an article of diet, sometimes depending on a peculiarity of constitution in the individual or disordered state of digestion; and in some instances, there has been reason to suspect a poisonous quality in the fish. Boiling is the preferable way of cooking fish, and the only one which should ever be adopted in preparing it for the use of the sick, or those of weak digestive powers; frying it in oil or butter is manifestly improper.

With regard to the condiments usually taken along with fish, the simplest and best is salt, or good ketchup, or a little plain butter, but this last should not be taken by dyspeptic patients; and above all, both they and others who are subject either to bilious or bowel complaints, should avoid the use of heavy and indigestible accompaniments, as lobster or oyster sauce.

FISH, Poisonous. We have adopted this as a separate article. From our anxiety to render this work as practically useful as it is in our power to do, we have judged it proper to afford a succinct account of poisonous fishes under this head. Shell fish of every description are greatly affected by the nature of the beds or bottoms on which they feed; and muscle, oysters, cockles, &c., are converted into poisons by feeding on a mineral, especially a coppery bottom. Of this a very striking instance occurred at Leith, in June, 1827, from the use of muscle which were obtained from the bar at the dock gates adhering to beams of timber that had floated there for many years; and as the wood was perfectly sound, there is no doubt the fish had imbibed a peculiar poison formed by the copper on the bottoms of vessels and other substances. Those who eat these muscles, and many did so, suffered severely all the pains and symptoms produced by animal poisons; and no mode of cookery or the use of condiments seemed in the smallest degree to mitigate symptoms, as among those who suffered some used them in one form, and some in another. The usual symptoms produced by fish poison, commence in an hour or two, or even in much less time. After eating poisonous or even stale and putrid fish, a sense of weight at the stomach comes on, with slight vertigo and headache, heat about the head and eyes, considerable thirst, eruption of the skin (nettle-rash), and in some cases death, especially from eating the *Clupea Thryssa*, or yellow-bellied sprat, a fish not unfrequently met with in the West Indies, and from the use of which death almost always inevitably and speedily ensues. The effects produced by the poisonous muscle at Leith, are described by Dr Combe in an excellent paper on the subject, published in the Edinburgh Medical and Surgical Journal for 1828; he describes them as follows: "In general an hour or two elapsed, sometimes more, and then the bad effects consisted rather in uneasy feelings and debility than in any distress referable to the stomach. Some children suffered from eating only two or three, and one patient, a young and healthy man, only took five or six. In two or three hours they complained of slight tension at the stomach. One or two had heart-burn, nausea, and vomiting, but these

were not general or lasting symptoms. They then complained of the prickly feeling of their hands, heat and constriction of the mouth and fauces, difficulty of swallowing and speaking freely, numbness about the mouth, gradually extending to the arms, with great debility of the lower limbs. The degree of muscular debility varied a good deal, but was an invariable symptom. In some it merely prevented them from walking firmly, but in most of them it amounted to perfect inability to stand. While lying in bed they could move their limbs with tolerable freedom, but on being raised to the perpendicular posture they felt their limbs sink under them. In some the secretion of urine was suspended, in others it was free, but passed with pain and great effort. The action of the heart was feeble, the breathing unaffected, the face pale, expressive of much anxiety, the surface rather cold, and the mental faculties unimpaired." Two persons died at Leith, and the others recovered. The *treatment* is simple, but should be always decided and expert. The stomach should be quickly cleared of its contents, by a half dram of sulphate of zinc, (white vitroil) or two grains of emetic tartar, and a scruple of ipecachuan; an enema administered of one ounce of Glauber or Epsom salts, with six grains of emetic tartar, and half a pint of warm water, and an ounce of castor oil, with one drop of croton oil, swallowed in a little peppermint or cinnamon water; a large sinapism, the size of our page, applied to the pit of the stomach. Where medicines are not to be procured, large draughts of warm water may be swallowed, and the fauces tickled with a feather to promote vomiting. When the vomiting has ceased, a cupful of strong lemonade, well sweetened, or vinegar and water with sugar, should be given every half hour or forty minutes, with thirty drops of nitre in each dose. The bowels may be kept open after the first enema, by the castor oil and turpentine enema. After the influence of the poison has been removed, a nourishing diet and tonic medicines may be given, to recruit the strength. It is scarcely necessary to add, for the information of those who have read our other articles on poisons, that should inflammatory symptoms appear, they are to be removed by bleeding and the other means recommended on these occasions, and in cases of severe pains in the limbs, or spasms, small doses of æther and laudanum.

The most common poisonous fish are the yellow-bellied sprat, already noticed, and the cancer astacus, or sea lobster; cancer runicolus, or land crab; murena major, or congor eel; mytelus cetulis, or muscle; and perea venenata, or rock fish. Besides these are one or two kinds of poisonous fish peculiar to the coasts of New Holland and Van Dieman's land; and every species of fish when putrid, and many when out of season, are likewise possessed of poisonous qualities; and every species of shell bred or feeding upon certain bottoms are likewise poisonous, although under circumstances and in season these fish may afford nutritious and wholesome food.

FISTULA. A narrow sore extending for some distance beneath the skin, and its circumference internally being condensed and lined with solid lymph, and having a small external orifice discharging a thin gleety fluid. Fistulæ are generally the result of abscess, when inertly treated, or where the abscess has been large and indolent, as in scrofulous patients, or when there is great mobility of the parts, preventing the entire adhesion of the walls of the cavity of the abscess when the contents have been evacuated. The indications of treatment are to excite a degree of inflammation in the parts, so as to cause the cavity to fill up by granulation; and for this purpose the treatment may in the first instance consist in throwing stimulating injections of sulphate of zinc, &c. into the cavity, by means of a small syringe, or using a seton; but if these fail in producing obliteration of the cavity, it must be laid open and a piece of lint introduced into the bottom of the sore, which must afterwards be treated as any other kind of ulcer.

Fistulæ occur in various parts of the body from abscesses, but are generally termed sinuses: the term fistula being generally restricted to those sinuses which occur in the following situations: 1st. By the side of the gut near the anus, termed fistula in ano, and through which, when complete, flatus and thin fæces are discharged externally, so as to stain the linen; there is generally considerable hardness by the side of the anus and pain; sometimes the fistula is incomplete, that is to say, it may have only one orifice, which may either communicate with the bowel without any external opening, or the reverse. The cure consists in the performance of a surgical operation, which though neither painful nor dangerous in itself, can only be trusted to a skilful surgeon. 2nd. Fistula in the perinœum is where the sinus communicates with the urethra, and urine is passed from the external opening on the patient making water; it is generally the result of bad stricture causing ulceration of the urethra or injuries of the part. Its symptoms and treatment will be more particularly spoken of when treating of stricture. 3d. Fistula lachrymalis, or watery eye, has been already described in our article on the diseases of the eye and its appendages.

FIXED AIR. See *Carbonic Acid.*

FLANNEL, is a well known substance, made of woollen yarn, the warp and woof or weft being both of that material, although of late there is a bastard kind of flannel, where the warp is of cotton yarn and the woof or weft of woollen. This last may answer equally well for

some purposes as real flannel, but is by no means so durable or useful an article, except for such parts of woollen clothing as may be used for infants. Flannel too, is plainly wove, not tweeled, like serge or *plaiding*, a coarser kind of woollen cloth, chiefly used in Scotland, which is tweeled, and furnishes an excellent material for drawers, petticoats, under waistcoats, and blankets, especially to the industrious classes and to seamen.

Flannel, as an under-dress, has, in our opinion, been in many cases most injudiciously recommended, and to this we alluded under the article *Cold;* indeed, in many cases we are persuaded it does positive harm. On a question, however, of such grave importance, we shall place both sides of the question before our readers. Dr Combe and Sir George Ballingal, two gentlemen for whose talents and acquirements we entertain the most sincere respect, are among the ablest and latest advocates of flannel. "The advantages of flannel as a preservative from disease in warm as well as in cold climates, are now," says Dr C. "so well understood, that in the army and navy its use is cogently and with great propriety insisted on. Sir G. Ballingal, in his valuable lectures on military surgery, has some very judicious remarks (continues Dr C.), on the influence of warm clothing in preserving the health of soldiers, and after adducing the testimony of Sir J. Macgregor, to show that in the peninsula the best clothed regiments were generally the most healthy, Sir G. adds, that when in India he had himself a striking proof of the utility of flannel in checking the progress of a most aggravated form of dysentry in the second batallion of the Royals. Count Rumford, a great authority too, on this and the kindred subjects of domestic economy, experimented on the effects of the different kinds of inner clothing; and from his experiments it would appear that there is no relation betwixt the power which the substances usually worn as clothing have of absorbing moisture and that of keeping the body warm. On these experiments our author observes, that though linen, with the apparent ease with which it receives dampness from the atmosphere, seems to have a much greater attraction for water than any other substance, yet it appears that those bodies which receive water in its unelastic form with the greatest ease, or are most easily wet, are not those which in all cases attract the moisture of the atmosphere with the greatest avidity. The Count expresses his surprise that the custom of wearing flannel next the skin should not have prevailed more universally. He is confident it would prevent a number of diseases, and he thinks there is no greater luxury than the comfortable sensation which arises from wearing it, especially after one is a little accustomed to it. It is a mistaken notion, says he, that it is too warm a clothing for summer. I have worn it in the hottest climates, and at all seasons of the year, and never found the least inconvenience from it. It is the warm bath of perspiration confined by a linen shirt wet with sweat, which renders the summer heats of southern climates so unsupportable; but flannel promotes perspiration and favours evaporation, and evaporation, it is well known, produces positive cold." Now we neither deny the facts and reasonings either of Dr Combe, Sir George Ballingal, or the Count Rumford, but we cannot help agreeing with Mr Simpson, a surgeon in the royal navy, and other authorities, who affirm that flannel is too indiscriminately adopted as an under dress. Woollen clothing, observes Mr Simpson, will not generally be required betwixt the tropics; in those situations, those coverings fabricated from cotton are more agreeable and convenient. In these latitudes, indeed, cotton would appear to have been actually appointed for the principal part of artificial clothing. It may be a subject of discussion, as it frequently has been, which of these materials, namely, woollen and cotton, is the most agreeable and beneficial when applied next to the surface. These articles have their partizans and favourites, as likewise their declaimers and opposers. Cotton, generally speaking, may be considered, and especially in all the warmer regions as the most fit for covering, in proximity with the cutaneous surface. Clothing made from this substance is commonly agreeable and comfortable next the skin, and imbibes readily the moisture which is perspired, it then becomes peculiarly suitable in those climates where the cutaneous exhalation is proceeding so copiously, and thus continuing the evaporation of the previously disengaged perspiration, the cotton clothing constitutes a convenient transferring intermedium. Linen in similar circumstances, and especially in those unaccustomed, would be productive of unpleasant feelings, such as coolness or chillness either particularly or diffusively experienced, or there may be the perception of an irregular refrigerated dampness.

The British have adopted with increasing propensity the method of their ancestors, amongst whom for many ages, woollen garments were almost exclusively articles of clothing. Considerable advantages are supposed to be derived from the continual employment of woollen garments, and more especially when worn immediately next the surface. These articles of clothing are now very commonly worn next the skin, and this is continued with increasing obstinacy, whether the thermometer fluctuates about 32° or occasionally advances to 70° or even 75°, which in this country it seldom surpasses. The flannel coverings become the convenient receptacles of the superficial excremental evacuations, and they are often allowed to continue perhaps for weeks and even months,

saturated with unusual exhalations, and thus they are rendered the harbourage of abominable nastiness. But this custom is certainly to be followed with some qualifications. To preserve the body in an equal and grateful temperature, must be very desirable, but it never could be intended to keep flannel so long in contact with the human body, without shifting, as we daily see done by those who wear it, sleep with it, and on whom it must very soon become offensive. It ought therefore never to be continued beyond a single night without a change, otherwise the body will be confined as it were in a bath of impure air, which ought to be exhaled instead of being accumulated. Very frequent ablution of the whole surface should be regularly attended to during the use of flannels. But if the weakly and valetudinarian have safely indulged in this practice it never was meant that the young and healthy should have recourse to such effeminate modes of clothing. The custom, however, has become so general, that we are in danger of losing the hardihood and vigour of our national character from its use. Flannel and fleecy hosiery are to be found under the shirt among half of the young men of the age, whose habits of changing them are not more delicate than others already alluded to, and who are shut up to the practice they adopt from the poverty of their wardrobe, and the circumstances in which they are placed. Where there are indeed particular complaints or circumstances of indisposition, or modifications of constitution, flannel clothing may not only be advantageous but necessary. Among these circumstances may be enumerated: first, the aged, rheumatic, and infirm, whose powers of life are so languid as to be incapable, without the aid of flannel, of keeping up the healthy function of perspiration, or that soft and agreeable feel of the surface so characteristic of healthy action. Previous, however, to flannel being worn next the skin, even in such cases it should first be tried above a *thin* cotton shirt. We say thin in such cases, as cotton shirts in some other cases require to be thick, and only in the aged, who are entirely free from any disposition to cutaneous affections, particularly the dry itch, often so very troublesome to the aged. The aged rheumatic who wears flannel, should have a long shirt extending down to the feet for night use, which should be hung up and exposed during the day in some dry airy situation, and the day flannel should in the same way be exposed during the night. These directions are equally applicable to flannel drawers and woollen stockings worn next the skin. By these means, in winter, or when the perspiration from the body is less profuse, flannels need not in general be changed oftener than every third or fourth day; but in summer or warmer weather, flannels require to be shifted daily if worn during the night, and every two days at most, if a night flannel dress is substituted. Even in consumptive cases, the patient will feel more comfortable, and the colliquative sweats will not be so intolerable where the flannel is worn over a thin cotton shirt. In that often imperceptible hectic that is the effect of grief, flannel always aggravates the night, and especially the morning perspirations; and when the skin is tender, never fails of rendering the sufferer more restless and debilitated. Chamois leather shirts are excellent substitutes in some such cases, especially where there is tenderness of the skin, and a tendency to rheumatism. See *Chamois* and *Rheumatism*.

Some may require the assistance of flannel in the colder months who can lay it aside in the warmer, and here care and attention are especially necessary, particularly by the delicate and sedentary. The change should never be too early made, and linen should never in any case be substituted; the first change should be to adopt an inner cotton shirt, wearing the flannel over it; and after this change has been made for a few days, the flannel may be thrown aside, and a stout cotton shirt worn in its stead, till it too can be dispensed with. In this way much suffering and disease may be prevented. But we must reiterate the principle so often urged on the consideration of youth, and those who have the charge of youth; that amongst the healthful and vigorous, and certainly in the summer season, the uncleanly and improper custom of wearing flannel is not allowable. It renders youth, especially boys, subject to a custom difficult to be overcome and relinquished; and the practice should be discouraged by all who have the interest of the rising generation at heart. Sir George Ballingal, Dr Combe, and other high authorities, who plead for the use of flannel, plead not for its indiscriminate use, and we are sure will most readily assent to the propriety of our advice. See *Clothing*.

FLATULENCE, OR WIND IN THE INTESTINES. This symptom is produced by gases which are evolved from the decomposed food, during the process of digestion, while that function is diseased or impaired. Sometimes the eructations have an offensive smell, like that of rotten eggs, which indicates great derangement of the digestive organs; at other times, as when it depends on vitiated biliary secretion, the eructations leave a taste in the mouth like that of a hard boiled egg.

As flatulence is more a symptom than a disease, we must refer our readers for the method of treatment to the article dyspepsia; for the principal indication of treatment, of course, consists in restoring the digestive organs to a healthy state. When there is great uneasiness, distension, and oppression, present from this cause, the uneasy symptoms may be relieved by

taking five or six drops of essence of peppermint or anise, with a scruple of carbonate of soda, dissolved in water; or a little rhubarb, magnesia, and ginger, dissolved in peppermint water; or a couple of the compound aloes and assafœtida pills. When flatulence is dependent on irritability of the stomach and bowels, four or five grains of Dover's powder, or one grain of extract of henbane, with half a grain of ipecacuan, may be given twice a day.

FLOODING signifies a sudden discharge of a large quantity of blood from the womb. Flooding occurs either during pregnancy or from disease; but the term is principally applied to those discharges which take place either immediately before, or after delivery. In the article *Abortion*, we have given very full directions for the method of treatment to be adopted in flooding during the early months of pregnancy; and in our article on *Menstruation*, will be found an account of the nature and treatment of those unnatural discharges of blood which sometimes occur during the unimpregnated state. At present we shall briefly consider the subject of flooding, as it occurs either previous to, during, or after labour. In the first of these cases the flooding generally depends on what is called a placenta presentation, that is, an unnatural position of the afterbirth, which presents at, or lies over the mouth of the womb: when the mouth of the womb begins to dilate, hæmorrhage occurs, from the rupture of some of its vessels; or flooding may arise from separation of the placenta, as from injury. If the woman be not come to the full time, we must enjoin perfect rest, and that the patient be kept cool; and if the patient is robust, a little blood may be drawn from the arm, and an opiate enema may be administered, and subsequently injections of some styptic fluid, as strong decoction of oak bark, may be thrown up the vagina twice a day, and ten or fifteen drops of elixir of vitriol given, morning and evening, where the bleeding recurs frequently; sugar of lead and opium, combined into a pill, are very efficacious, but they form dangerous remedies, except in the hands of a regular practitioner; and indeed, in such cases, a medical man should be called in, as other measures may be requisite for the safety of the patient, which could only be entrusted to a skilful surgeon. When the placenta presents over the mouth of the womb during labour, it is a case requiring all the courage, coolness, and promptitude of the most experienced practitioner.

Flooding seldom occurs during labour previous to the expulsion of the child, except in the above mentioned cases; but not unfrequently after the birth of the child, and before the expulsion of the placenta; in this case, cold should be applied over the lower part of the abdomen, and the afterbirth should be extracted without delay. Perhaps the most alarming case of flooding is that which occurs after delivery, because it often proceeds insidiously, in consequence of the blood collecting in the womb, or vagina, or both. The symptoms which indicate this dangerous occurrence are as follow. The patient complains of continued uneasiness in the back and lower part of the belly; she feels faint and sick, the pulse at the wrist becomes feeble, and then ringing in the ears; if these signs be disregarded, dimness of sight, delirium, oppression at the heart, convulsions, with ghastly paleness, and coldness of the surface supervene with more or less rapidity, and death ensues. This state is owing to imperfect contraction of the womb, and is easily ascertained by an examination. The treatment must be active and prompt, the accumulated blood must be removed, the uterus must be forced into contraction by mechanical compression or friction, and dashing cold water over the belly, and by giving the ergot of rye internally; its permanent contraction is to be secured by applying a firm roller and compress made of a folded towel over the womb. In all such cases the strength must be supported by the exhibition of wine or other stimuli, according to the exigencies of the particular case.

FLORENTINE ORRIS, or the *Tres Florentina*. This plant, indigenous in Italy and the south of Europe, is not much employed in the practice of medicine. The recent root is extremely acrid, and possesses cathartic and hydragogue powers, and was at one time employed in dropsy. By drying, however, the acrid purgative properties are in a great measure dissipated, and the root acquires a pleasant violet odour. On this latter account, it is chewed to conceal the taint communicated to the breath by the use of mercury and spirits, and enters into the composition of lozenges and tooth powders. The root is sold dressed, and is white, flattish, and knotty, and in this form it is put in wardrobes or among clothes, to communicate an agreeable flavour. The powder is used as already stated, and likewise scattered among pills to prevent their sticking together. It is in fact, more an article of perfumery than medicine.

FLOWER DE LUCE, or *Tres Germanica*. The fresh roots of this plant, like the preceding, have a disagreeable smell, and an acrid nauseous taste; these qualities they partly lose by drying. They are, however, in their recent state, powerfully cathartic, and were at one time given in dropsies; but are now seldom employed, as we have a variety of more agreeable remedies.

FLUCTUATION. The sensation communicated to the finger by the perceptible motion caused in the collections of gas or other fluids, by pressure or percussion. See *Abscess*.

FLUOR ALBUS, technically *Leucorrheæ*. This disease consists in an increased secretion from the mucous glands of the uterus, is characterized by the appearance of the discharge, which differs much in different women, being of a white, green, yellow, or brown hue, mostly at the commencement white and pellucid. The discharge is, indeed, sometimes of so acrid a nature, as to excoriate the parts on which it lodges, and occasionally it even communicates the same symptoms by contact, to a second person. These appearances are accompanied by pain in the loins, loss of appetite, general debility, and wasting of the flesh.

The causes of this disease, as enumerated by authors, are very various. M. Lisfranc says that he has seen the discharge produced by the use of foot-stoves, and likewise by an immoderate use of coffee, which, he says, frequently produces its immediate reappearance in some females; but it is not very easy to ascertain either the exciting or proximate causes. Whatever stimulates the parts in an excessive degree, has been conceived to give rise to the complaint; but, on the other hand, it has also been attributed to a variety of circumstances, that tend to debilitate the system, and a pretty extensive practice in the treatment of this complaint has convinced us that the latter is most frequently the case, although, in some instances, local irritation or excitement may be combined with general debility, in giving rise to this affection. The debilitating effect of the complaint is much greater than might have been expected, from the quantity of matter discharged, indicating that the complaint is to be referred chiefly to some constitutional action, depending upon the relation which the uterine system bears to the other parts of the animal economy. In addition to the accompanying symptoms of the discharge already noticed, the patient becomes emaciated, with pale countenance, chillness, languour, disturbed sleep, frightful dreams, her eyes are dull and heavy, flushing of the face, alternated by a ghastly paleness; as a sequel to these, the ankles swell, palpitation and difficulty of breathing are experienced, and great mental debility, and even derangement, occasionally manifests its presence. The complaint and its attendant symptoms is often sympathetic of some structural disease of the uterus, and is then the more unfavourable in its prognosis, and often more distressing in its immediate effects; but when it exists in its simple form, although, as we have remarked above, it is considerably debilitating, and proves a source of much inconvenience, it is seldom to be regarded as dangerous.

A question has been asked, Is it, or is it not, contagious? Is it, or is it not, venereal? Questions difficult to be resolved, and on which medical men still differ in opinion. "I believe," says Lisfranc, "that leucorrhæa may communicate a venereal disease, and still more so when it is accompanied with slight ulcerations of the vagina or urethra. They more frequently occur than is imagined, since their existence can only be ascertained by the aid of a magnifying glass." Now we are exactly of the opinion that in certain stages it may be communicated by contact, and put on, in the male, many of the appearances of *syphilis;* and although, according to Lisfranc, it may communicate a venereal disease, it will not be that disease usually known by the name of *the* venereal disease. It is necessary to state this fact, as it has sometimes broken the peace of families, and occasioned much unjust calumny against the innocent accused.

With respect to the *treatment* of this disease, the indications of cure are not very obvious in many cases, and the effect of remedies often very uncertain. When the discharge is recent, and is induced by an acute inflammation, recourse must be had to antiphlogistic mucilaginous drinks, such as acidulated barley water, vegetable diet, and a bleeding, more or less copious, according to the abundance of the menses. When the inflammatory symptoms are calmed, (but, indeed, we have seldom seen them exist to any great degree) counter-irritants may be given, such as balsam of copaiba, or cubebs, in such doses, and under the same regulations as we have ordered them in gleet; only the dose, in this case, may be more rapidly increased, taking at least, six drops more of the Balsamic Tincture in the course of the day. An injection may likewise be thrown up the vagina, with a female syringe, twice a-day, composed of a dram of alum dissolved in a pint of rose or elder flower water, or even of common water. Or a decoction of bramble roots may be employed. If the bowels are costive, they may be gently opened every third or fourth day, by six drams of castor oil mixed with two drams of oil of turpentine. It should, however, not be concealed that it often requires the most active and judicious treatment to subdue the complaint, and where it can be done, the case should be submitted to the care of an experienced practitioner. As there is in general a torpor of the intestines, the occasional use of oils of castor and turpentine, as already directed, should be used every third day. The oils should be well shaken together before they are swallowed, and the head kept low on the pillow for an hour after. They may be taken on a wine glassful of cinnamon water; violent exercise of every description should be avoided, and above every thing the mind kept tranquil, as violent mental emotions most infallibly aggravate the disease. Heating or intoxicating liquors are most pernicious. The diet should be light and nourishing; chicken broth thick-

ened with flour, rice, or sago; beaf tea thickened with the same; and if faint an occasional glass of cold port wine negus, with a hard water biscuit. The external parts should be kept as clean as possible, owing to the very irritating, and indeed sometimes almost caustic nature of the discharge. If the digestive organs are weak, the patient may take half a wine glass of the following mixture an hour before meals:—

Compound infusion of gentian, half a pint.
Compound tincture of gentian, four ounces, mix.

Or one grain of quinine three times a day, in fifteen drops of elixir of vitriol, and a wine glass of cold water.

FLUX. See *Dysentery*.

FLY POWDER, OR FLY WATER. In this country, a strong infusion of the chips or raspings of Quassia wood, is used for destroying flies when they are troublesome during the summer season. It is usual to place a little sugar on the edges of the dish in which the infusion is exposed, in order to attract the flies. This destroys the flies very effectually, and in great numbers, and it has the advantage of not being in any way dangerous to children or others, who might drink it by mistake, as the strong bitter of quassia will prevent too large a dose from being taken. Many of those, however, who sell fly water on the streets, frequently mix a portion of arsenic with the infusion of quassia, and the mixture thus becomes a violent poison. On the continent of Europe, there is a fly powder sold of a blackish gray colour that contains arsenic; and therefore, should be employed with the greatest caution. If any accident arises from drinking these liquids, the patient is to be treated as directed under *Arsenic*. The infusion of quassia with sugar, as a bait, should alone be used; half an ounce, which may be procured for a penny, may be infused or boiled in a pint and a half of water for ten minutes, and this cheap article will destroy the flies without any risk to children or others. Families should, therefore, always prepare it for their own use, and so prevent any accident occurring.

FŒTUS. The term used to express the child whilst in the womb. This term is generally restricted to the child in the womb from the fourth month of pregnancy till the birth; previous to the fourth month it is usually termed the embryo. The peculiarities of the fœtal circulation have been already described under the article *Circulation*.

FOMENTATION means the application of moisture and heat, by means of flannel or cloths wrung out of warm water, or other warm fluids. Fomentations are useful in bruises, sprains, abscess, and when applied over the abdomen in cases of colic, or other cases of abdominal irritation, care should always be taken to wring the cloths or bags well out, to prevent the fluid running on the bed, and rendering the patient uncomfortable.

FOOL'S PARSLEY, or *Æthusa Cynapium*. This plant is so called from its deleterious properties, and the resemblance it bears to parsley, for which it is sometimes mistaken. It is an annual, common in gardens and cultivated grounds, in almost every part of the united kingdom, and flowers from June to September, and sometimes later. The root is slender and spindle shaped, and the stem rises to the height of two feet, erect, striated, and generally of a dark purple colour at the base. Being so generally dispersed throughout gardens and fields, and so apt to be mistaken for parsley, its noxious character should be more generally known. Strong as is its resemblance to the common parsley, it has botanical distinctions by which it may be known. The leaves of the fool's parsley are finer, more decurrent, and of a darker green, and instead of the peculiar parsley smell, have, when bruised, a disagreeable odour. When the flower stem of the fool's parsley appears, the plant is readily distinguished from all other umbellate plants by what is called its beard, three long pendulous leaves of the involucrum, under the partial umbels. The flowers, too, of the fool's parsley are white, those of the garden parsley of a pale yellow. In order to prevent mistake, it is best to cultivate the curled variety of the common parsley only, as it not only possesses the same virtue, but also makes a more elegant garnish. Boerhave states, that a boy six years of age having eaten this plant at four in the afternoon, which he took for parsley, began immediately to utter cries of anguish, and complain of cramps in the stomach; while he was going to his father's house, the whole body became excessively swelled, and assumed a livid appearance, his breathing became every moment more difficult and short, and he died towards midnight. His tongue was black, a brownish matter was found in the stomach, and the liver was hard and of a yellow colour; the spleen livid, but the body was not at all emphysematous. When eaten in small quantities, it occasions vomiting, which may be stopped by a very large dose of brandy, and the application of a mustard sinapism to the pit of the stomach, and the use of the enema of castor oil with turpentine. For a more particular account of the mode of treating persons who have taken vegetable poisons, the reader is referred to the article on *Poisons;* and for attaining a more correct knowledge of this plant, reference is made to the coloured Plate.

FOX-GLOVE, or *Digitalis Purpurea*. This is one of the most beautiful indigenous biennial plants that adorn the road sides and ditches, even in mosses and moors where the inclosure presents little else to the eye than heath, some-

times interspersed with sweet gale, another pleasant and medicinal, and like the foxglove, poisonous plant. The foxglove, or fancy thimbles, or fox tree leaves, as it is called in some districts of Ireland, delights in gravelly and sandy soil, and its stately appearance has acquired it a place in the gardens, and shrubberies of our gentry. The plate will at once suffice for a description of this important plant, but we may be allowed to observe that the leaves are large, oblong, egg shaped, soft, covered with hairs, and serrated. They have a bitter, very nauseous, and a somewhat acrimonious taste. When the leaves are collected for medicine, they should be gathered when the flower is just about to expand, and those taken from the middle part of the stem are to be preferred. The ashes of the plant contain salts of lime and potash; and M. Rayer and others believe they have discovered the active principle of the plant, which they have named *digitaline*. This substance is brown, pitchy, and deliquescent, capable of crystallization, but not crystallized, of intense bitterness, and seeming to possess the properties of the plant in a high degree. It not having, however, been admitted into the practice of medicine, seems to justify or hazard an opinion on its probable or real qualities. The seeds are very small, and contained in an oval capsule.

Foxglove is not a medicine to be tampered with, and is therefore excluded from the family medicine chest, being a powerful poison; but at the same time, in the hands of the experienced and judicious physician, it is a truly valuable medicine. Its effects are to diminish the frequency of the pulse, remove the irritability of the system, increase the action of the absorbents, and act as a powerful diuretic. In an over dose, or when it acts as a poison, it produces vomiting, purging, dimness of sight, vertigo, delirium, hiccup, convulsions, collapse, and death. For these symptoms, the best remedies are cordials and stimulants; indeed, foxglove is one of the most powerful contra-stimulants. Digitalis has been recommended internally in inflammatory diseases, from its very remarkable power of diminishing the velocity of the circulation in active hæmorrhages, in pulmonary consumption, in some spasmodic affections, as in spasmodic asthma, palpitation, &c.; in mania, or madness from effusion on the brain, in anasarcous and dropsical swellings, in scrofulous tumours, aneurism of the aorta, and affections of the heart. Externally, it has been applied to scrofulous tumours in the form of a poultice formed of the leaves cut small, with oatmeal porridge; or of the powder of the leaves sprinkled over any common poultice. It is employed in substance either by itself or conjoined with some aromatic, or made into pills with soap or gum ammoniacum. The leaves should be dried in the dark, and speedily, on the top of a baker's oven, or some such place, when they are easily reduced to a fine green powder, which should be kept in opaque bottles, or in bottles covered with dark coloured paper. As a diuretic, one grain, or rather one half grain, gradually increasing the dose to two grains twice a day, may be given until it acts upon the kidneys, stomach, pulse, or bowels, when its use must be laid aside or suspended, and when recommended, begin again with a small dose as at first. Should any young or inexperienced medical practitioner, think fit to consult our work, we beg to remind them that foxglove sometimes lies dormant in the system, and appears for a while to produce no effect, while the doctor goes on increasing the dose, and beginning to think that the medicine has been too long kept and lost its efficacy, when all of a sudden it manifests its power by alarming and fatal symptoms. If the practitioner is not prepared for this, the patient suddenly sinks and dies. Foxglove is likewise used in infusion and tincture. A dram of the dried leaves is infused for four hours in eight ounces or half a pint of boiling water, and strained, and an ounce of gin or whisky, or indeed any other spirit, added to the infusion. Half an ounce or an ounce of this infusion may be given twice a day. The tincture is made by infusing two ounces of the dried leaves in one pint of proof spirits for seven days, and then straining the tincture with expression, and afterwards filtering it through blotting paper. From five to forty drops of the tincture may be given twice or three times a day, gradually increasing the dose one drop at each time, till the desired effect is produced. When this medicine has been over dosed, or taken by mistake, or design, in large quantity, thirty drops of laudanum, and two drams of the tincture of assafœtida, and the same quantity of spirit of camphor, in two ounces of warm water or gruel, should be administered as an enema, and the patient made to drink freely of brandy, gin, whisky, or rum, or ether, in cinnamon or peppermint water.

FRACTURE may be defined a solution of continuity in one or more bones; in common language, a broken bone or bones. Fractures are generally the result of great force applied directly to the shaft of a bone, as from blows, falls, &c.; but they sometimes result from the twisting of a limb, whilst the muscles are in violent action. Bones are sometimes broken transversely, but more generally there is a degree of obliquity, or the bone may be split longitudinally, and fissured for a considerable extent, as from a musket ball striking the shaft of a long bone. The bones become brittle as age advances, and are therefore more liable to fracture in old persons; and this condition also exists in certain diseased states of the constitu-

Fig. 1

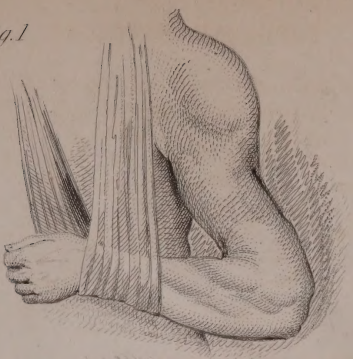


Fig. 2

Fig. 4

Fig. 3

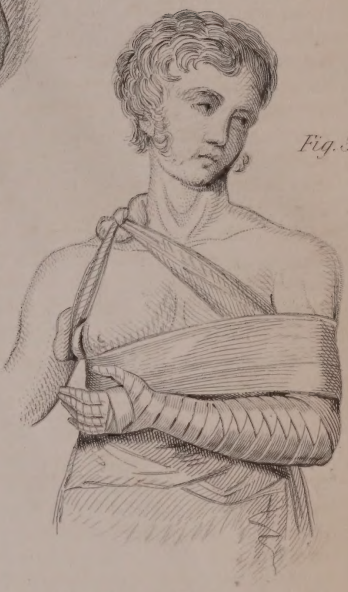
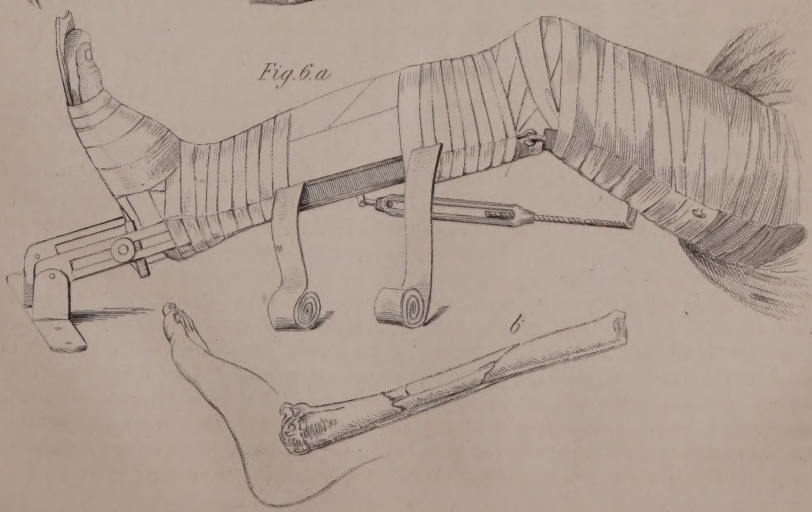


Fig. 5

Fig. 6.a



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tion, where sometimes even the slightest motion will produce fracture. In children, on the contrary, the bones contain comparatively little earthy matter; and are therefore less liable to fracture; indeed, we frequently find a sort of incomplete fracture in children, the bone bending before the force applied, and only breaking partially, on the convexity of the curve.

The distinguishing marks of fractures are deformity, shortening, loss of power, unnatural degree of motion on extending the part, and a grating noise accompanied with pain, which is caused by the ends of the broken bone moving on each other. The accident is soon followed by swelling, and if proper means be not used to reduce the fracture, by spasmodic twitchings of the limb. These symptoms, however, may be modified, or one or more may be altogether wanting; thus, there is but little deformity, and no shortening, when one of two parallel bones is broken, and much swelling is prevented if the bones be put as nearly as possible into their natural position, laid in an easy position, and secured so at once. But if, on the contrary, the broken ends are allowed to lie loose, and move about amongst the surrounding soft parts, great swelling and serious laceration will be the probable result. Fractures are divided into simple, compound, comminuted, and complicated. Simple fracture is where there is no wound of the superimposed skin, and this, generally speaking, is reckoned the least dangerous kind of fracture; yet cases sometimes occur in which extensive injury of the deeper seated parts takes place without wound of the integuments which yield before the force applied; but usually such untoward circumstances do not exist in cases of simple fracture. Compound fracture is where the integuments and other soft parts are divided so as to expose the bone, or where the bone is protruded through the soft parts by the violence of the injury. But if the wound does not penetrate to the bone, the injury is then termed fracture with wound, not compound fracture. Fracture, whether simple or compound, is said to be comminuted when the bone or the fractured point is broken into several fragments. Fracture is termed complicated, where it is accompanied by wound, laceration of large blood vessels, displacement of a neighbouring joint, or other serious injuries. The union of broken bones is preceded by incited action in the part, and effusion of organizable matter termed callus; in fact, by a process analogous to that observed in union of soft parts, and which has been already described when treating of union of divided parts generally in the article on adhesive inflammation. This process, however, may be disturbed, or altogether prevented by certain states of the constitution, as the presence of certain diseases and discharges, &c.; and by undue freedom with the part as moving it too early or too frequently during the cure, or by removing the splints and bandages before the union is complete. The general period at which firm union takes place of course depends on particular circumstances, but may be stated as generally taking place from the fifth to the seventh week, but great caution should be observed in using the part for some weeks afterwards. The method of treating or reducing fractures consists of three different acts, which are, 1. Extension, or the act of pulling the broken part in a direction from the trunk, in order to bring the broken ends into their natural position. 2. Counter extension, or the act of extending the opposite direction so as to hinder the upper part of the limb from being drawn along by the extending power. 3. Coaptation, or setting, that is, the act of placing the broken ends in contact in their natural position; and under this head may be included the act of retaining them in their proper position by splints, bandages, &c.

With regard to particular fractures, we shall be very brief, because they are injuries which cannot be safely entrusted to the care of non-professional persons. But as they sometimes occur in situations where medical aid cannot be procured, we shall mention some of those which are of most frequent occurrence, or which might be mistaken for dislocation, as at the hip, shoulder, and elbow joints, and for the further assistance of the reader we have given plates of the external appearances of those fractures which might be so mistaken, and which by being compared with the similar plates showing the dislocations, we trust will sometimes prove serviceable. We have also added figures of the principal methods of bandaging fractures, which will assist our descriptions of that process. See Plate of Fractures. Fractures of the bones of the skull have been already fully considered, when treating of compression of the brain. The bones of the face are sometimes broken, particularly the bones of the nose and lower jaw; both these accidents are generally compound, as the lining membrane of the nose in the former case, and the gums, and lining membrane of the mouth are generally torn by the broken ends of the bones, and are usually attended with considerable bleeding. In fracture of the bones of the nose the accident is very evident, and the treatment consists in introducing a narrow piece of stick covered with lint within the nostrils, and whilst pressure is made outwards with this instrument, the bones are to be moulded into form, by the fingers applied externally; no apparatus is requisite to keep the bones in position. In fracture of the lower jaw, the nature of the accident is also too visible to be mistaken, owing to the great distortion and displacement of the parts, which is greater according as it is further removed from

the chin. The broken ends of the bone, after being set, are to be retained in their position by means of two wedge-shaped pieces of cork, grooved on the upper and lower surfaces to receive the teeth; the thick ends are placed anteriorly, and are so retained by the lower jaw being firmly bound towards the upper by means of a bandage from below the chin to the top of the head; and then a pasteboard splint shaped to fit the part, and softened with warm water, is applied externally, and retained by bandaging. The patient must be nourished by fluid aliment during the cure. Detached teeth and broken splinters of bone should always be completely removed before setting this fracture.

Fractures of the spinal column, like those of the skull, are dangerous, owing to the injury inflicted on the important contained organ, and are more or less dangerous as they occur higher or lower in the spine. These injuries are effects of great violence, as from direct blows on the column, or by falls from a height, the person alighting on the breech, whilst the head and trunk are bent forwards and are attended with paralysis, and loss of sensation in the part below the injury; and if high up in the cervical part of the spine by instant death. In fact, they are a class of injuries which can never be treated except by professional men, and even then are in general fatal in their results. Fracture of the ribs is attended with pain on breathing, and is generally the result of falls or direct blows on the part; where the lung is wounded, however slightly, the danger is greatly increased, and the accident is then usually attended with emphysematous swelling. The fracture is ascertained by laying the hands over the ribs at the suspected part, and then bidding the patient breathe, when a grating sensation will be felt. The treatment is to apply a broad bandage round the chest so as to fix the ribs, and to combat symptoms of inflammation, if these arise by the usual antiphlogistic treatment.

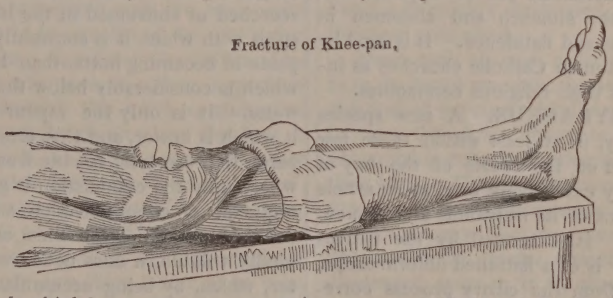
Fracture of the collar bone is an accident of frequent occurrence, and easily recognized from the portion of the bone nearest the breast bone seeming to project; we say seeming, because it is not really displaced, but appears to be so from the outer portion being pulled downwards by the weight of the arm. In this case, the shoulder is to be raised, and the elbow supported, being pressed upwards, and at the same time towards the chest, and the shoulders pulled backwards so as to raise the depressed portion of the collar bone, and to bring it into apposition with the other portion, and is to be retained in this position by means of the following apparatus. First take a wedge-shaped pad of cotton wadding sufficiently large to fill up the arm pit, and place this in the folds of a soft shawl, the narrow end of the pad being lowest; the shawl is then to be carried across to the opposite shoulder and the ends crossed there, and then brought down and tied under the arm pit. Pads of some soft substance being placed beneath the crossings to prevent fretting of the skin from the pressure, the hand and elbow must next be supported by a sling, and finally, the elbow secured to the side by means of a few turns of a broad roller. See Plate III., fig. 3. The sling and shawl require to be looked to, and tightened from time to time. This apparatus is also the best which can be used in fracture of the acromion process of the scapula.

Fracture of the neck of the arm bone, or humerus, might be mistaken by a non-professional person for dislocation into the axilla, as the general appearance is somewhat similar; in both the elbow is separated from the side, and there is numbness of the fingers, &c.; but in fracture the limb is shortened, the depression under the acromion does not exist, nor does that process appear to project as in dislocation, owing to the head of the humerus occupying its natural situation, which of course is not the case in dislocation; there is also the grating sensation on extending the arm and the pushing it gently upwards so as to rub the ends of the bones on each other, and there is unnatural mobility of the limb; if the reader will compare these marks with those of dislocation, as given in our article on that subject, and also compare the engravings representing the appearances of each, we think he will scarcely mistake the two cases. The treatment of this fracture is the same as that recommended for broken collar bone, with the addition of a long pasteboard splint on the outside of the arm, to reach beyond the tips of the fingers secured by bandaging. Fracture of the neck of the thigh bone, is one more difficult to detect, owing to the thickness of the parts which cover it, and may be likewise mistaken for displacement of the hip joint. The limb is shortened, the toes everted, and their unnatural mobility, and the history of the accident, may serve to guide us, for this fracture generally happens in old people from slight causes, as falls, or blows on the part, whilst dislocation at this joint is usually the result of great violence. (Compare also article on *Dislocations*, and Plate, III. fig. 4.)

When this fracture occurs in very old persons, there is little or no chance of bony union, and we may induce serious injury to a worn out constitution by the application of complicated bandages and splints. The best method under such circumstances is to lay the limb in the straight position on pillows, confining the foot by means of a handkerchief to the board near the foot of the bed; in this way the end of the bone is fixed so as to prevent its moving about in the soft parts, whilst at the same time the patient lies easy, and unencumbered by

clumsy apparatus. But in cases where we think there is a chance of the bone uniting, and the limb becoming useful, the simplest and most effective apparatus both for this and all other fractures of the thigh bone, is the following, recommended by Mr Liston. It consists of a plain deal board of a hand's breadth for an adult of sufficient strength; narrower and slighter for young patients. It should be long enough to extend from opposite the nipple to two or three inches beyond the sole of the foot; it is perforated by two holes at the upper end, and has two deep notches at the lower, and a hollow or perforation opposite the ankle bone, to prevent pressure on it. A broad roller is split at the one end for two or three inches, and then tied through the openings at the upper end of the splint, and then unrolled to near the lower end of the splint, and fixed till going to be used; a narrow pillow or pad is then fixed to the splint by pieces of tape. The foot being next bandaged, a folded shawl padded with some soft substance is then placed under the hip of the patient, one end being brought up in front of the perineum; the other behind the ends of this are then drawn through the holes in the top of the splint, but not tightened till the splint is finally secured by bandaging, which is done by passing the two or three lowest turns of the roller through the notches at the foot of the splint, and then bandaging neatly upwards to the groin; then a broad roller is applied round the trunk, and the ends carried downwards to meet the first roller; finally, the ends of the shawl are tightened so as to cause extension of the limb; but our directions will be more readily understood by looking at fig. 5, in the plate. Fractures in the shafts of bones are readily recognized, and are to be treated by splints placed so as to fix the neighbouring joints, and secured by bandaging; those of the thigh bone are best managed with the last described apparatus, and those of the bones of the arm and fore arm by the application of a long pasteboard splint as that used in fracture at the shoulder; placing, however, an additional splint along the opposite side of the arm. See fig. 2.

Fracture of Knee-pan.



Fracture of the patella, or knee pan, is best treated on an inclined plane so as to relax the muscles which tend to draw the upper portion towards the thigh; in the accompanying woodcut a dissected limb is represented, to show the nature of the accident, and proper position for the limb during treatment. Fractures of one or both bones of the leg, are to be treated on the double inclined plane represented in fig. 6. *a*, and which can also be readily made of two pieces of board with a hinge, or by pillows so arranged as to answer the same purpose; and in all cases the heel should be raised higher in proportion as the fracture is high up the leg, otherwise the upper portion will project. See Plate figs. 6. *a*, and 6. *b*. In compound fractures the injury inflicted on the neighbouring soft parts as well as on the bones, is frequently of such a nature as to preclude all hopes of saving the limb, and demands immediate amputation. Such injuries are generally the result of great violence, as those inflicted by gun-shot, machinery, &c. In other cases where the injury is not so extensive, the part is to be washed gently with warm water to remove dirt and other foreign substances from the wound. Loose fragments of bone are to be extracted, long narrow spiculæ of bone are to be taken off by a small saw or cutting pliers, or if the projecting piece of bone be of considerable thickness, the external wound must be dilated by incision so as to allow of its reduction, and then the fractured limb laid in the same position as in simple fracture, but with the bandage so applied that the wound may be readily got at and dressed, and this is best done by applying the bandage as represented in Figure 6. *a*. In all cases of fracture, constitutional symptoms are apt to supervene, and these must be treated in each individual case according to circumstances, and the general rules given when speaking of fever, inflammation, and other diseases; but we should always keep in view the nature of the injury inflicted, and therefore we ought never to prescribe violent purgatives or other remedies, which will be apt to cause much disturbance to the position of the patient.

REFERENCE TO PLATE III.

Fig. 1. Fracture of the neck of the humerus or arm-bone.
Fig. 2. Retentive apparatus for fractures of the arm.
Fig. 3. Apparatus for broken clavicle or collar-bone.
Fig. 4. Fracture of neck of thigh-bone.
Fig. 5. Apparatus for fractures of the thigh-bone.
Fig. 6 *a*. Fracture of bones of leg, reduced and placed on the double inclined planes.
Fig. 6 *b*. Shows position of the portions of the broken bone when so placed.

FRANKINCENSE. A resinous juice which exudes of itself from the spruce and Scotch firs, in warm seasons and climates, and hardens into tears or small lumps by exposure to the air. It is then a solid brittle resin, brought to us in tears or masses, outwardly of a brownish yellowish colour, internally whitish or variegated with whitish specks, of a bitterish, acrid, disagree-

able taste, with little smell. It is not now ordered by the colleges, though it enters into the composition of some resinous ointments and plasters.

The other substance is a gum resin, the juice of the *juniperus lycia*, and sometimes called gum olibanum, and at other times frankincense. It has a moderately strong and not very agreeable smell, and a bitterish, somewhat pungent taste; in chewing it sticks to the teeth, becomes white, and renders the saliva milky. Laid on red hot iron it readily catches flame, and burns with a strong diffusive and not unpleasing smell. In trituration with water the greatest part of it dissolves into a milky liquor, which on standing deposits a portion of resinous matter. The gummy and resinous parts are nearly in equal proportions, and though rectified spirits dissolve less of the olibanum than water it extracts nearly all its active matter. In ancient times it seems to have been in great repute in affections of the head and breast, coughs, spitting of blood, and in various fluxes, both uterine and intestinal; it was also much employed externally. Recourse is now seldom had to this medicine, which is almost entirely superseded by myrrh and other articles of the resinous kind. It is yet, however, considered by some continental physicians, and some at home, as an astringent and valuable medicine in fluor albus and debilities of the stomach and intestines, and given in doses of from two to five grain pills night and morning. With equal parts of the lead or diachylon plaster it is used with advantage as a strengthening plaster, and with equal parts of asafœtida plaster applied with good effect to the stomach and abdomen in cases of weakness and flatulence. It is used by the Greek and Roman Catholic churches as incense in some of their religious ceremonies.

FUCUS AMYLACEUS. A new species of fucus recently, or at least within these few years, discovered on the coasts of the bay of Bengal, and very extensively used as an article of diet on account of its nutritious and alimentary properties. It is termed by the natives the *edible moss;* is of a flattened filiform shape, and two inches from the ciliary process corresponding the root. It is composed of vegetable jelly, true starch, in considerable quantity, wax, gum, sulphate and muriate of soda, sulphate and phosphate of lime, traces of iron, and, lastly, ligneous fibre. This the *Fucus Amylaceus*, (so termed by its discoverer, Dr O'Shaughnessy of Bengal), is entirely free from the very bitter principle which constitutes so great an objection to the other families of the Lichen and Fucus. It has been found highly useful in asthmatic complaints, and as an article of diet in chronic diarrhœas and dysenteries, and other diseases peculiar to the country; and when properly prepared, an excellent sea store for invalids returning from India to Europe for the benefit of their health. It has been strongly recommended to the attention of the medico-botanical society as another useful addition to our dietetic materia medica, by Doctors Wallich, Jourdan, and others, and has similar properties to the *Fucus Crispus*, or Carragheen moss.

FUEL. Doctor Black divides fuels into five classes. The first comprehends the fluid inflammable bodies; the second, peat or turf; the third, charcoal of wood; the fourth, pit-coal charred; and the fifth, wood, or pit-coal, in a crude state, and capable of yielding a copious and bright flame. The fluid inflammables are considered as distinct from the solid, on this account, that they are capable of burning upon a wick, and become in this way the most manageable sources of heat; though, on account of their price, they are never employed for producing it in great quantities, and are only used when a gentle degree, or a small quantity of heat, is sufficient. The species which belong to this class are alcohol and different oils. The first of these, alcohol, when pure and free of water, is as convenient and manageable a fuel for producing moderate or gentle heats as can be desired. Its flame is perfectly clean, and free from any kind of soot; it can easily be made to burn slower or faster, and to produce less or more heat, by changing the size or number of the wicks upon which it burns; for, as long as these are fed with spirit, in a proper manner, they continue to yield flame of precisely the same strength. The cotton, or other materials, of which the wick is composed, is not scorched or consumed in the least, because the spirit with which it is constantly soaked is incapable of becoming hotter than 174° Fahrenheit, which is considerably below the heat of boiling water. It is only the vapour that arises from it which is hotter, and this, too, only in its outer parts, that are most remote from the wick, and where only the combustion is going on, in consequence of communication and contact with the air. At the same time, as the alcohol is totally volatile, it does not leave any fixed matter, which, by being accumulated on the wick, might render it foul, and fill up its pores. The wick, therefore, continues to imbibe the spirit as freely, after some time, as it did at the first. These are the qualities of alcohol as a fuel. But these qualities belong only to a spirit that is very pure. If it be weak, and contain water, the water does not evaporate so fast from the wick as the more spirituous part; and the wick becomes, after some time, so much soaked with water, that it does not imbibe the spirit property. The flame becomes much weaker, or is altogether extinguished. When alcohol is used as a fuel, therefore, it ought to be made as strong, or free from water as possible.

Oil, although fluid like spirit of wine, and capable of burning in a similar manner, is not so convenient in many respects. It is disposed to emit soot; and this, applying itself to the bottom of the vessel exposed to it, and increasing in thickness, forms, by degrees, a soft and spongy medium, through which heat is not so freely and quickly transmitted. It is true we can prevent this entirely by using very small wicks, and increasing the number, if necessary, to produce the heat required. Or we may employ one of those lamps, in which a stream of air is allowed to rise through the middle of the flame, or to pass over its surface with such velocity as to produce a more complete inflammation than ordinary. But we shall be as much embarrassed in another way; for the oils commonly used, being capable of assuming a heat greatly above that of boiling water, scorch and burn the wick, and change its texture, so that it does not imbibe the oil so fast as before. Some have attempted a remedy, by making the wick of incombustible materials, as asbestos or wire; but still, as the oil does not totally evaporate, but leaves a small quantity of gross, fixed, carbonaceous matter, this, constantly accumulating, clogs the wick to such a degree, that the oil cannot ascend, the flames become weaker, and, in some cases, are entirely extinguished. There is, however, a difference among the different oils in this respect, some being more totally volatile than others. But the best are troublesome in this way, and the only remedy is, to change the wicks often, though we can hardly do this and be sure of keeping always an equal flame.

The second kind of fuel mentioned, peat, is so spongy, that, compared with the more solid fuels, it is unfit to be employed for producing very strong heats. It is too bulky for this; we cannot put into a furnace, at a time, a quantity that corresponds with the quick consumption that must necessarily go on when the heat is violent. There is, no doubt, a great difference in this respect among different kinds of this fuel; but this is the general character of it. However, when we desire to produce and keep up, by means of cheap fuel, an extremely mild, gentle heat, we can hardly use any thing better than peat. But it is best to have it previously charred, that is, scorched, or burnt to black coal. The advantages gained by charring are considerable. When it is prepared for use in that manner, it is capable of being made to burn more slowly and gently, or will bear, without being extinguished altogether, a greater diminution of the quantity of air with which it is supplied, than any other of the solid fuels.

The next fuel in order is the charcoal of wood. This is prepared by piling up billets of wood into a pyramidal heap, with several spiracles, or flues, formed through the pile. Chips and brushwood are put into those below, and the whole is so constructed as to kindle throughout in a very short time. It would burst out into a blaze, and be quickly consumed to ashes, were it not covered all over with earth or clay, beaten close, leaving openings at all the spiracles. These are carefully watched; and whenever the white, watery smoke is observed to be succeeded by thin, blue, and transparent smoke, the hole is immediately stopped; this being the indication of all the watery vapour being gone, and the burning of the true coaly matter commencing. Thus is a pretty strong red heat raised through the whole mass, and all the volatile matters are dissipated by it, and nothing now remains but the charcoal. The holes being all stopped in succession, as this change of the smoke is observed, the fire goes out for want of air. The pile is now allowed to cool. This requires many days; for, charcoal being a very bad conductor of heat, the pile long remains red hot in the centre, and, if opened in this state, would instantly burn with fury. Small quantities may be procured at any time, by burning wood in close vessels. Little pieces may be very finely prepared, at any time, by plunging the wood into lead melted and red hot. This kind of fuel is very much used by chemists, and has many good properties. It kindles quickly, emits few watery or other vapours while burning, and, when consumed, leaves few ashes, and those very light. They are therefore easily blown away, so that the fire continues open, or pervious to the current of air which must pass through it to keep it burning. This sort of fuel, too, is capable of producing as intense a heat as can be obtained by any; but in violent heats it is quickly consumed, and needs to be frequently supplied.

Fossil coals charred, called *cinders*, or *coaks*, have, in many respects, the same properties as charcoal of wood; as kindling more readily in furnaces than when they are not charred, and not emitting watery, or other gross smoke, while they burn. This sort of charcoal is even greatly superior to the other in some properties. It is a much stronger fuel, or contains the combustible matter in greater quantity, or in a more condensed state. It is, therefore, consumed much more slowly on all occasions, and particularly when employed for producing intense melting heats. The only inconveniences that attend it are, that, as it consumes, it leaves much more ashes than the other, and these much heavier too, which are, therefore, liable to collect in such quantity as to obstruct the free passage of air through the fire; and further, that when the heat is very intense, these ashes are disposed to melt or vitrify into a tenacious, drossy substance, which clogs the grate, the sides of the furnace, and the vessels. This last inconvenience is only troublesome, however, when the heat required is very intense. In

ordinary heat, the ashes do not melt, and though they are more copious and heavy than those of charcoal of wood, they seldom choke up the fire considerably, unless the bars of the grate be too close together. This fuel, therefore, is preferable, in most cases, to the charcoal of wood, on account of its burning much longer, or giving much more heat before it is consumed. The heat produced by equal quantities, by weight, of pit-coal, wood-charcoal, and wood itself, is nearly in the proportion of 5, 4, and 3. The reason why both these kinds of charcoal are preferred, on most occasions, in experimental chemistry, to the crude wood, or fossil coal, from which they are produced, is, that the crude fuels are deprived, by charring, of a considerable quantity of water, and some other volatile principles, which are evaporated during the process of charring, in the form of sooty smoke or flame. These volatile parts, while they remain in the fuel, make it unfit (or less fit) for many purposes in chemistry. For, besides obstructing the vents with sooty matter, they require much heat to evaporate them; and therefore the heat of the furnace, in which they are burnt, is much diminished and wasted by every addition of fresh fuel, until the fresh fuel is completely inflamed, and restores the heat to its former strength. But these great and sudden variations of the heat of a furnace are quite inconvenient in most chemical processes. In the great number of chemical operations, therefore, it is much more convenient to use charred fuel, than the same fuel in its natural state.

It is proper to be on our guard against the dangerous nature of the burnt air which arises from charcoal of all kinds. Charcoal burns without visible smoke. The air arising from it appears to the eye as pure and as clear as common air. Hence it is much used by those persons who are studious of neatness and cleanliness in their apartments. But this very circumstance should make us more watchful against its effects, which may prove dangerous, in the highest degree, before we are aware of it. The air arising from common crude fuel is, no doubt, as bad, but the smoke renders it disagreeable before it becomes dangerous. The first sensation is a slight sense of weakness: the limbs seem to require a little attention, to prevent falling. A slight giddiness succeeds, accompanied by a feeling of a flush or glow in the face and neck. Soon after the person becomes drowsy, would sit down, but commonly falls on the floor, insensible of all about him, and breathes strong, snoring as in an apoplexy. If the person is alarmed in time, and escapes into the open air, he is commonly seized with a violent headache, which gradually abates. But when the effect is completed, as above described, death very soon ensues, unless relief be obtained. There is usually a foaming at the mouth, a great flush or suffusion over the face and neck, and every indication of an oppression of the brain, by this accumulation of blood. The most successful treatment is, to take off a quantity of blood immediately, and throw cold water on the head repeatedly. A strong stimulus, such as hartshorn, applied to the soles of the feet, has also a very good effect.

The fifth and last kind of fuel is wood, or fossil coals, in their crude state, which it is proper to distinguish from charcoals of the same substances. The difference consists in their giving a copious and bright flame, when plenty of air is admitted to them, in consequence of which they must be considered as fuels very different from charcoal, and adapted to different purposes. Flaming fuel cannot be managed like the charcoals. If little air be admitted, it gives no flame, but sooty vapour, and a diminution of heat. And if much air be admitted, to make those vapours break out into flame, the heat is too violent. These flaming fuels, however, have their particular uses, for which the others are far less proper. For flame, when produced in great quantity, and made to burn violently, by mixing it with a proper quantity of fresh air, by driving it on the subject, and throwing it into whirls and eddies, which mix the air with every part of the hot vapour, gives a most intense heat. This proceeds from the vaporous nature of flame, and the perfect miscibility of it with the air. As the immediate contact and action of the air are necessary to the burning of every combustible body, so the air, when properly applied, acts with far greater advantage on flame than on the solid and fixed inflammable bodies; for when air is applied to these last, it can only act on their surface, or the particles of them that are outermost; whereas, flame being a vapour or elastic fluid, the air, by proper contrivances, can be intimately mixed with it, and made to act on every part of it, external and internal, at the same time. The great power of flame, which is the consequence of this, does not appear when we try small quantities of it, and allow it to burn quietly, because the air is not intimately mixed with it, but acts only on the outside, and the quantity of burning matter in the surface of a small flame is too small to produce much effect. But when flame is produced in large quantity, and is properly mixed and agitated with air, its power to heat bodies is immensely increased. It is therefore peculiarly proper for heating large quantities of matter to a violent degree, especially if the contact of solid fuel with such matter is inconvenient. Flaming fuel is used, for this reason, in many operations performed on large quantities of metal, or metallic minerals, in the making of glass, and in the baking or burning of all kinds of earthenware. The potter's kiln is a cylindrical cavity, filled from the

bottom to the top with columns of wares: the only interstices are those that are left between the columns; and the flame, when produced in sufficient quantity, is a torrent of liquid fire, constantly flowing up through the whole of the interstices, which heats the whole pile in an equal manner. Flaming fuel is also proper in many works or manufactories, in which much fuel is consumed, as in breweries, distilleries, and the like. In such works, it is evidently worth while to contrive the furnaces so, that heat may be obtained from the volatile parts of the fuel, as well as from the fixed; for when this is done, less fuel serves the purpose than would otherwise be necessary. But this is little attended to, or ill understood, in many of those manufactories. It is not uncommon to see vast clouds of black smoke and vapour coming out of their vents. This happens in consequence of their throwing too large a quantity of crude fuel into the furnace at once. The heat is not sufficient to inflame it quickly, and the consequence is a great loss of heat.

The quantity of watery fluid contained in fuel greatly affects the amount of heat it produces; much more, indeed, than is commonly admitted in practice. It is a well known law of chemistry, that the evaporation of liquids, or their conversion into steam, consumes, and renders latent, a greater amount of caloric. When green wood, or wet coals, are added to the fire, they abstract from it, by degrees, a sufficient part of its heat, to convert their own sap or moisture into steam, before they are capable of being burnt. And as long as any considerable part of this fluid remains unevaporated, the combustion goes on slowly, the fire is dull, and the heat feeble. Green wood commonly contains a third, or more, of its weight of watery fluid, the quantity varying according to the greater or less porosity of different trees. Nothing is further from true economy than to burn green wood, or wet coal, on the supposition that, because they are more durable, they will in the end prove more cheap. It is true, their consumption is less rapid; but to produce a given amount of heat, a far greater amount of fuel must be consumed. Wood that is dried under cover is better than wood dried in the open air, being more free from decomposition.

FUMIGATION. The use of the fumes or vapour of certain substances, for the purpose of disinfecting sick rooms, ships, &c., and for the removal of effluvia, or miasm. The best substances for these purposes are the chloride of lime and diluted sulphuric acid, or saltpetre and sulphuric acid. The substance to be used is put in a saucer, and then acid poured over it. When the chloride of lime is used, the diluted vitriol combines with the lime whilst chlorine gas is set free. Where saltpetre is used the vapour disengaged is nitrous acid gas. In mixing either of these preparations, great care must be taken to avoid inhaling the concentrated fumes which escape when the acid is poured on. The windows or other apertures of the apartment to be fumigated, should be kept closed for some hours, and saucers or plates of the mixture placed in different parts of the room, and at the end of from four to six hours the windows, doors, &c. should be thrown open to admit a free current of pure air.

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GALBANUM. This is an exudation from the *Bubon Galbanum*, an umbelliferous plant which is indigenous in Africa. As it first issues, it is a milky juice, which gradually hardens into semi-transparent yellow tears; it has a resinous smell and an acrid bitterish taste; it is partially dissolved both by water and alcohol, and by distillation an essential oil may be procured from it. There are pills, a tincture, and plaster entered in the pharmacopeias, and it enters into several compositions which do not bear its name. Galbanum is considered antispasmodic, deobstruent, expectorant, and, externally in the form of plaster, resolvent and discutient. The pills are taken in doses of from ten grains to half a dram, or even more, in cases of hysteria and deficient menstruation, and the tincture is taken in the same diseases, in doses of from thirty drops to one dram, in a glass of peppermint tea. The plaster is applied to indolent tumours. It is, however, far inferior to assafœtida in all cases for which it is employed, and may be superseded by that powerful medicine, and for these reasons we do not append the formulæ. See *Asafœtida*.

GALL-BLADDER; a small bladder into which the bile, or gall, as it is sometimes called, is collected. This bag is situated in a depression on the lower surface of the right lobe of the liver; it is somewhat pear-shaped, the larger extremity being directed forwards and downwards, whilst the narrow extremity or neck is directed upwards, backwards, and inwards, and ends in the cystic duct, which is about an inch

and a half long; this duct bends downwards and inwards, and joins another duct, termed the hepatic, which is the excretory duct of the liver; the union of these two ducts forms one common duct. The gall-bladder serves, as we have already stated, as a reservoir for the bile; this fluid is secreted in the liver, and flows down the hepatic duct, and if not required in the intestinal canal or obstructed in the common duct, it passes by the cystic duct into the gall-bladder, where it remains until required to assist in the function of digestion.

GALLIC ACID. An acid that is found in a greater or less quantity in all sour or astringent vegetable substances, but is most abundant in nut galls. It enters into the composition of most vegetable astringents, and is therefore in its combined state used in medicine.

GALLS. These are small round substances, produced by an insect on the leaves of a particular kind of oak which grows in Asia Minor. They are inodorous, and have an astringent and very austere taste, and are hard and ligneous. The best are free from holes and of a blackish blue colour. They are very astringent and tonic, but seldom employed internally, although they have been used in diarrhea, intestinal hemorrhages, and intermittants, in doses of from ten grains to a scruple of the powder, three times a day. They are frequently employed in astringent gargles, injections, and ointments; and Dr Thomson recommends an ointment for the piles, composed of two drams of the powder of galls, one dram of powdered opium, and two drams of the extract of lead, to be mixed with two ounces of hog's lard. We have frequently ordered an ointment of this kind, with good effect, in cases of piles. Galls are likewise in use as a chemical test, in dyeing and ink making.

GALL-STONES; biliary concretions formed in the gall bladder. They are divided into three varieties. 1st. Those composed of cholestrine nearly in a pure state. 2d. The mellitic calculi, so named from their colour resembling that of honey. 3d. Calculi, entirely composed of inspissated bile. Gall stones sometimes pass into and obstruct the cystic or common ducts, and so prevent the bile flowing into the intestine, giving rise to the violent and serious symptoms which will be found treated of in the article *Jaundice*.

GALVANISM. The discovery of this species of electricity is due to the wife of Galvani, professor of anatomy at Bologna, who having accidently noticed that when the nerve of the limb of a frog, lying near an electrical machine, was touched with a piece of metal, it was thrown into convulsions, even though the animal had been dead for some time. She mentioned the circumstance to her husband; this naturally excited his curiosity, he repeated the experiment, and after varying it in different ways, proved satisfactorily what had thus been discovered by mere accident. He found that the convulsions could also be excited independent of the electric machine; for having with the view of proving the truth of some of his opinions with respect to muscular motion, suspended a frog by means of a metallic hook on an iron railing, he found that at certain times they were excited, and also, that when the nerve was covered with a metallic leaf, and the leg laid on another piece, and establishing a communication between them by means of wire, the convulsions became stronger. From the different experiments which Galvani performed, he was inclined to suppose that the action was the same which takes place in electrical animals, and that the metal or metals served merely as conductors. He conceived that the different parts of the body were in the plus and minus states of electricity; and that on making a communication between them, it was discharged and caused the convulsions. Hence he gave it the name of animal electricity. Volta, however, gave a different view of the subject. He supposed that it was merely common electricity evolved by the metals, the animal being a conductor and showing its effects. He has shown, for instance, that particular sensations are excited in the human body by a similar adjustment of metal. Thus, if we put a piece of zinc between the upper lip and gum, and a piece of silver between the lower lip and gum, and bring them together, a flash of light darts across the eyes, provided the experiment be performed in the dark. Though these facts seemed to prove that the effects produced on animals by metals were merely those of common electricity, this opinion was for a considerable time opposed, till by a particular contrivance it was put beyond the possibility of a doubt. It occurred to Volta, that the convulsions might be made greater by using more pieces of metal. He accordingly took a number of plates of zinc and silver, and arranged them in pairs, putting a moist card between each pair, and following the same order throughout, as zinc, silver, card; zinc, silver, card, &c. &c. When the legs were touched with wires attached to each end of the voltaic pile, the effects were much greater, and he also found that they were invariably in proportion to the number of metallic plates used; fully proving that the electricity was evolved by the metals, and not by the animal. The apparatus by which this was proved, is termed a voltaic pile or galvanic battery.

Several improvements have been made on the pile, the most important of which was the discovery of Cruickshanks. The apparatus used by him consists of a wooden trough, on the sides of which are cut grooves, at the distance of one fourth or one half an inch from each other, according to its size, and into which are placed a plate of copper and zinc soldered together, fol-

lowing the same order as in the voltaic pile, as copper, zinc; copper, zinc, &c. &c.; so that on looking from one end along the battery, we see all the zinc faces, and from the other all the copper ones. It is not a matter of indifference what metals we employ in constructing a battery; they must have different powers of oxidation or being acted on by acids. One must be easily affected, whilst the more the other resists their action the better. For the former zinc is generally used, and for the latter copper, which being cheap and not easily acted on, is generally preferred. Different liquids are used for the excitation of galvanism. When water alone is employed the effect is trifling; solutions of the compound salts act more powerfully, but those which produce the strongest action are acids, and of these nitric is preferred; it is generally diluted with about twenty or thirty parts of water; or muriatic acid may be used with sixteen parts of water, and for some purposes, a mixture of nitrous and sulphuric acid is employed in the proportions of three of nitrous, to one of sulphuric diluted with thirty of water. When we wish the galvanism to be strong, we rather use a large battery than increase the strength of the acid, as that would destroy the plates; and as it would be inconvenient to have a great many plates into one trough, several small troughs are used, their ends being connected by wires, taking care that a zinc termination is always opposed to a copper one. The liquid having been previously poured into the trough, and wires placed at the positive and negative ends of the trough, the apparatus is ready for use. The sensations excited by the battery are very peculiar; if a ball be fixed on each wire and the hands wetted and placed on them, there is a thrilling sensation in the fingers and arms, which becomes painful if the battery be large; and at the same time convulsions are excited. It is necessary, however, to the success of the experiment that the hands be wet, and the greater the extent of moistened surface, the more powerful are the effects; if the hands be applied to the balls when dry, there is but little effect. Galvanism passes through bodies with different degrees of celerity. Good conductors of electricity are good conductors of galvanism, and those which do not conduct the former are also non-conductors of the latter: of course, glass and dry vegetable matters are non-conductors, whilst all fluids, charcoal, and metals are conductors, the last being by far the best. Galvanism has been employed in the cure of diseases, as palsy, deafness, involuntary contraction of the muscles, asthma, and some others, and it has been recommended in cases of suspended animation. The method of applying it is very simple. The part to be subjected to its influence is wetted with a solution of salt, or very much diluted muriatic acid, and the ball at the end of each wire is then to be applied at the same time to the moistened part, the person applying the wires having on gloves, to prevent the transmission of electricity through his body. Galvanism is for this purpose preferable to electricity, both on account of the simplicity of its application, and also because the necessary apparatus is less expensive and less liable to injury.

GAMBOGE, or CAINBOGE. This gum, or rather gum resin, for it consists of a gum nearly resembling cherry-tree gum and resin, with other substances, of the precise nature of which we are yet ignorant. It is of a beautiful yellow colour, and on this account used as a paint, and of a firm dense compact texture. It is the juice of one or more trees which grow in the East Indies. As a medicine, it is chiefly used as a drastic purge, and operates violently, sometimes both upwards and downwards. It has been used in dropsy, but most frequently in the expulsion of worms, especially the tape worm. Dr Cullen says, that in consequence of the quick passage of gamboge through the intestines, he was induced to give it in small and frequently repeated doses, as three or four grains, rubbed with a little sugar, every three hours, and this found it operate without griping or sickness, and in three or four exhibitions evacuate a great quantity of water both by stool and urine. It is given in doses of from two to six grains, and is frequently combined with calomel, four grains of each being rubbed up with half a dram of sugar, and given after two or three doses of oil of turpentine have been administered, and in this form it will often expel great quantities of the tape worm. Diluent drinks, such as beef tea, or chicken broth, should be taken plentifully during its operation. We do not, however, approve of either the large doses of fifteen grains prescribed by some, nor of a long perseverance in the use of this medicine at any one time, as it is very apt to produce irritation of the mucous membrane of the intestines. And we have no doubt this was the case of some of those who died from large and long continued doses of Morison's pills; gamboge being one of the articles of which they consist, and we believe the extract of black hellebore, a strong drastic purge, is another. Gamboge however, judiciously employed in moderate doses, is a useful medicine in dropsical and worm cases. The compound pills are ordered to be prepared as follows:

Take of gamboge and socotrine aloes both in powder.
—— The compound powder of cinnamon, each one dram.
—— Castile soap, two drams.

Rub the powders together; then having added the soap, beat the whole together until they are thoroughly incorporated. Two or three ordinary sized pills of this mass are a dose, and may be taken occasionally; but as we have already stated, we do not consider the constant use of gamboge in any form advisable; nay, we are convinced it is dangerous to indulge in

it to the extent in which some other vegetable purgatives may be used.

GANGLION. A small reddish gray knot found on some parts of the nervous system. In surgery, the term signifies a collection in some of the bursæ. Ganglia are most frequently situated about the wrist; the swelling is usually globular, but when much enlarged it is rendered irregular by the pressure of the tendons. They present an unseemly appearance, and retard the motions of the part. Sometimes they form without any apparent cause, at others they arise from twists, over exertion, or sprains.

The treatment consists in rupturing the cyst, and allowing the contained fluid to be extravasated into the cellular tissue, where it is speedily absorbed; whilst the cyst inflames and becomes obliterated. The best method of rupturing the cyst, is either by firm compression with the thumb, or by striking the swelling sharply with some obtuse body, such as the back of a book; the part should be subsequently bandaged, and rest ought to be enjoined for a few days.

GANGRENE. This term is often applied as synonymous with mortification. There is, however, a difference in the meaning of the terms gangrene and mortification when correctly used, and the general reader often finds it difficult to comprehend the meaning of the author or speaker. Gangrene may therefore be defined incipient mortification, or that degree of mortification where sensibility to motion and warmth are present; but when these phenomena cease, and the part assumes a livid brown or black colour, it is then termed *sphacelus*, or complete mortification. Gangrene is attended with a sudden diminution of pain in the part of the body affected, a livid discoloration, which from being yellowish becomes of a greenish hue, a detachment of the cuticle under which a turbid fluid is effused; lastly, the swelling tension and hardness of the present inflammation subside, and on touching the part, a crepitus, or rattling sound, is perceptible, owing to the generation of air in the gangrenous parts. These characteristics should be borne in mind by the domestic medical adviser, especially in corresponding with, or consulting a professional man of education and experience. On the contrary, when the part has become quite cold, black, incapable of moving, and destitute of all feeling, circulation, and life, this, as already stated, is the second stage of mortification, usually termed *sphacelus*, and we hope these explanations will render the subject clear and distinct for all practical purposes.

GARGLE. That form of liquid medicine employed to wash or gargle the mouth or throat. A gargle should be moved well about in the mouth, and where the throat is diseased, as far back as possible, holding the head back at the same time, but taking care not to swallow the gargle, which is to be spit out. There are many forms of gargles to be met with throughout the work, under the respective diseases in which they are ordered to be used, and various forms of effective and easily prepared gargles will be found in the *Domestic Pharmacopeia;* but for ordinary purposes, as in the treatment of common sore throat, equal parts of port wine, vinegar, and water may be employed.

GARLIC, or *Allium Sativum of Linnæus.* This plant is a native of Sicily, where it grows wild, but it has long been cultivated in Britain, and throughout Europe; indeed we might add, in every civilized country of the globe, both as a medicine and condiment. To such an extent is it used in Portugal, Spain, and some other countries, that it might almost be denominated an article of diet. Every part of the plant, but more especially the root, has a pungent acrimonious taste, and a peculiar strong offensive smell. So extremely penetrating and diffusive is this odour, that on being taken into the stomach, the alliaceous or garlic scent impregnates the whole system, and is discoverable in the various excretions, as in the urine, perspiration, milk, &c. It is allied to the onion, from which it seems only to differ in being more powerful in its effects, and in its active matter being in a more fixed state. They both favour digestion, as a stimulus are readily diffused over the system, and their stimulating and invigorating effects have not escaped the notice of our great northern novelist in his character of the Highland Drover, who braves fatigue and toil with his onion, oatcake, and perchance a slight seasoning of salt butter. They may, therefore, be considered useful condiments with the food of phlegmatic people, or those whose circulation is languid and secretions interrupted, or by those exposed to hard labour, cold, and moisture; but with those subject to inflammatory complaints, or where great irritability prevails, these roots, in their acrid state, may prove very hurtful. Garlic has long been in estimation as an expectorant in phthisis, asthmas, and other pulmonary affections when unattended with inflammation. It is injurious in hot bilious constitutions, for it frequently produces flatulence, head ache, thirst, heat, and other inflammatory and unpleasant effects. As a diuretic in dropsies, its utility is attested by unquestionable authorities, and its febrifuge power has not only been experienced in preventing the paroxysms of intermittents, but even in subduing the plague. Quartans have been cured by it, and Bergius says 'he begins by giving one bulb or clove every morning and evening, adding every day one more, till four or five cloves be taken at a

dose. If the fever then vanishes the dose is to be diminished, and it will be sufficient to take one or even two cloves twice a day for some weeks.' Another virtue of garlic is that of an anthelmintic when taken in the morning fasting, and a dose of senna taken the following day; it will sometimes bring away the long round worm, and the only way in which children can be induced to take it for this purpose, is in the form of strong syrup, or boiled in milk. A strong decoction used as an enema will likewise dislodge the small worms that lodge in the rectum, but it is only in the absence of more convenient medicines, that garlic should be employed for the destruction of worms. In scorbutic and calculous disorders, it has likewise been found of great advantage, acting in these not only as a diuretic, but in some instances manifesting a lithontripic power, and more especially in the case of the aged. From the experiments of Lobb and others, it may be inferred that the juice of all alliaceous plants has considerable effect upon the human calculi, and some high authorities in medicine have asserted, that a decoction of the beards or roots of leeks taken liberally, and its use persevered in for a length of time, has been found remarkably successful in calculus and gravelly complaints. Garlic, applied externally, often resolves and discusses indolent tumours. For this purpose the roots are beaten and boiled in milk, and formed into the consistence of a poultice, with oatmeal or crumbs of bread. Indeed from its penetrating and diffusive acrimony, its external application is useful in many disorders as a rubifacient, and more especially as applied to the soles of the feet, to cause a revulsion from the head or chest, and for these purposes it was frequently employed by Sydenham; as likewise under the form of a poultice to the pubes or region of the bladder, it has sometimes proved effectual in producing a discharge of urine in cases of retention. When applied in the form of a poultice in either of the preceding cases, as soon as it produces inflammation or sickness, it may be removed, and a mild poultice of linseed meal, or bread and milk, applied in its place, to obviate the pain that may be occasioned. In cases of deafness proceeding from atony or rheumatism, a very small piece of garlic, wrapped in thin gauze or muslin, and introduced into the ear, has frequently afforded relief.

The garlic may be administered in a variety of forms. Swallowing the clove entire after being dipped in oil is the most effectual; but as few can effect this, it may be divided in two or more shares without bruising it, but even cutting it deprives it of part of its juice, and of course its efficacy. On being beaten up and formed into pills, the active part of this medicine soon evaporates, though Dr Cullen thinks, and we are of his opinion, that Lewis and others have fallen into a gross error, in supposing the dried garlic more active than the fresh. Dr Duncan says, that 'the expressed juice, when given internally, must be rendered as palatable as possible by the addition of sugar and lemon juice. The infusion in spirit, wine, vinegar and water, although containing the whole of its virtues, are so acrimonious as to be unfit for general use, and yet an infusion of bruised garlic, in a pound of milk, was the mode in which Rosentian exhibited it to children afflicted with worms.' Dr Duncan indeed thinks the form of pill the best, but unless used on the day on which they are prepared, we know from experience they soon lose their efficacy. We may be allowed to state that many extraordinary effects were, and still are attributed to garlic, and although our own experience has taught us to receive the statements with considerable reserve, yet we feel convinced that this medicine is better worthy our attention than many more expensive and concentrated chemicals. Among its other effects, therefore, it was admitted, that if a few cloves were bruised and applied to the wrists it would cure ague, and to the bend of the arm toothache, and when held in the hand relieve hiccough and other nervous affections. The honey or syrup of garlic may be prepared by cleaning one pound of garlic roots, bruising them, and adding gradually one pint of water, and then pressing out the juice. A pint of milk or wine vinegar may then be added to the pressed roots, and allowed to macerate for an hour, when it may be pressed out as the other. This is to be added to the first; the two will form about an imperial quart and two ounces, and to this three pounds of refined sugar, or four pounds of clarified or clear honey, may be added, and the vessel containing them placed over a steam or water bath, as directed for honey of roses, &c.; till the whole is reduced to the consistence of a honey or syrup. It may then be set aside for twenty-four hours, and any impurities that rise to the surface taken off. This syrup or oxymel will keep in a cool place for a considerable length of time, and may be used in doses of from a tea spoonful to a large table spoonful, as occasion requires. It is certainly a useful remedy in the asthmatic cough of the aged, and we have seen it do good when more complicated remedies have failed.

GARON OR GARUM. The Greeks prepared a kind of pickle from a fish which they called the garos, but the best kind was said to be prepared from mackerel, and was considered a great delicacy. The term garum is, however, now applied to the liquor in which fish is pickled; but there is a variety of recipes for the preparation of garum. The pickle of herring, sprats, and anchovies, boiled with salmon and other fish, communicate a fine flavour; but upon this subject we refer our readers to the invalu-

able works of Dr Kitchiner, Mrs Dalgairns, Meg Dodds, Mrs Johnston.

GELATIN, GELLY, OR JELLY. Gelatin sometimes, especially in English works, written Gelatine, is one of the constituent principles of animal substances, insoluble in alcohol, but may at certain temperatures he dissolved in water. In a certain degree of consistence it assumes a tremulous or elastic form, which it loses by being subjected to a higher degree of heat, and by drying becomes hard. The property of becoming liquid by heat, distinguishes it from another animal substance, albumen, which on the contrary becomes hard or consistent, as is exemplified in the white of an egg. The art of tanning leather is founded on the fact, that gelatin is precipitated by tannin in an insoluble form. Gelatin may be extracted from bones by careful succination, so as to convert it into broths or soups, and by that process the gelatin does not acquire that disagreeable smell it has when prepared from bones by other means. M. Darcet prepares gelatin from the bones of various animals, by first boiling them till deprived of their fat; they are then digested in very dilute muriatic acid, until the whole of the lime and earthy basis of the bone is dissolved away. The cartilage and much of the gelatin remain in the form of a flexible semi-transparent substance, retaining the original form of the bone. These masses are repeatedly washed with water, at length with water holding a little carbonate of soda in solution, and finally with pure water, so as that all traces of muriatic acid may be removed. They are then dried and preserved in a dry situation. When some of this mixed cartilage and gelatin is thrown into water, it, according to Mr Denovan, 'absorbs fifty-eight per cent and swells. When two and a half parts are boiled in one hundred of water, they dissolve, and the solution on cooling, forms a jelly. By evaporating this jelly, it at length thickens, and may be cut into squares, which will harden on cooling. This portable soup, if redissolved and seasoned, will answer as nourishment when better is not procurable.' The same substance, however, if recently prepared from bones without the aid of muriatic acid, as in the form we have already referred to, viz. by continued maceration in a steam bath, will form most excellent and palatable soup. Mr Denovan does not seem to be aware of the dietetic effects of this substance, when treating on the theory of soup making, in his work on domestic economy. Bones merely by the process we have recommended in another article, or by using a digester, give out, not only their fat, gelatin, and cartilage, but some of the phosphate of lime itself is boiled out, as Mr Denovan admits, and as he says, 'imparts a certain portion of whiteness and earthiness of taste to the soup.' Now it is this very principle we wish to have communicated to the soup, when it is used as an article of diet, in cases where the earthy matter of bones is deficient. In all cases when bones have been subjected to long boiling, even though there was no increase of temperature beyond 212°, the same whiteness and earthy taste are discoverable. This is a valuable fact, but Mr Denovan, instead of turning it to any practical good, adds, 'hence in the preparation of superior soups, bones as contributing nothing which meat cannot better supply, ought to be excluded if the boiling is to be long continued.' We have no objections that bones be excluded 'from superior soups,' but Mr D. will not find the valuable addition of what he calls earthy whiteness and taste, for there is no grittiness; and if phosphate of lime and the other earthy substances in bones, can be administered in the very agreeable form of soup, surely the bones ought not to be excluded.

GENITALS, PECULIAR AFFECTION OF, IN FEMALE CHILDREN. There is a peculiar affection of the female organs of generation, which although it frequently occurs, has not, so far as we know, been noticed by any systematic writer on medicine or surgery. It is a peculiar kind of inflammation incidental to the external organs of children, which in some respects is important, for it is a serious affection in itself, and has in many instances been confounded with *syphilis*, a mistake which has given rise to questions of a very serious nature, producing very unpleasant feelings in the minds of parents, especially mothers, which a little correct information would have prevented. We say correct information, for even some of the faculty and female practitioners of midwifery, for want of experience, have rather fanned the flame of anxiety into a full blaze, than attempted to put it out by the extinguisher of truth and professional address. This affection occurs in young subjects, from four or five, to eight, ten, or twelve years of age. It consists in inflammation of the labia, and the external organs generally, which assumes a deep dusky red colour, and in which foul ulcerations form, with a tawny gray and sometimes an actual sloughing surface. They are very painful, attended with a thin fœtid discharge, and sometimes extend, so as to occupy a considerable portion of the surface of the external parts of generation, with feverishness, restlessness, great pain, and very considerable disturbance of the health of the child. These appearances have in many instances been supposed syphilitic, and hence have arisen in some cases suspicions that children have been violated; consequently in some cases judicial trials have been the result. We hope the more wide and extended publicity of the following case by Mr Lawrence, will prevent such trials in future, and ease the minds of parents who have sometimes been rendered uneasy by placing dependence on the ill-founded opinions of professional or non-professional advisers.

'I had occasion,' (says Mr L.) 'to see a child in whom this affection had occurred, though the severity of the affection had then gone by, where it had taken place, simply in consequence of those peculiar circumstances in the state of the health, and where in consequence of the previous professional opinions, that it was the venereal disease, the child was questioned and interrogated until I believe from fear and apprehension, she gave in to the idea that had been suggested, and strongly entertained by her parents, and said that a certain youth had done something or other to her; this proceeded so far that the suspected individual was taken to Bow Street, examined there, and in fact tried at the Old Bailey on a capital charge of violating this young person. On that trial I gave evidence, and it is not the only instance in which the circumstance has taken place.' Now had a medical witness of less repute or of less nerve appeared in the witness box, this innocent youth might have suffered the extreme punishment of the law. Let it be borne in mind, that the characters of this disease are totally dissimilar to those of syphilitic affections. There is, in the first place, an excessively deep coloured inflammation, with great disturbance in the health of the child in the very commencement of the affection, and then the ulcerative process that takes place on the inflamed surface is foul and sloughing, and of a tawny colour, totally different from the characters of any primary venereal sore.

As to the treatment, soothing applications are necessary in the active period of inflammation, such as turnip or carrot beat into soft pulp, and confined in a bag of thin mull muslin half the width of our page, and as long as the page, and kept to the part by fastening a broad tape or ribbon at each end of the bag, to a bandage passed round the body. The parts may likewise be bathed with the water that has been pressed out of the turnips or carrots before the poultice is applied; the child is to be enjoined rest, and the bowels are to be kept open by giving a saturated solution of cream of tartar sweetened with sugar, which few children will refuse. If the parts have proceeded to the stage of relaxation or sloughing, they should be washed with a lotion composed of one ounce of tincture of myrrh, and three ounces of rose water, and the carrot poultice continued. But if the sores have a very mortified like appearance, a barm or fermenting poultice may be necessary, and the sulphate of quinine must be given internally three times a day. The following formula will be found most agreeable:—

Sulphate of Quinine, half a dram,
Elixir of Vitriol, one dram.
Dissolve the quinine in the elixir, and then add six ounces of simple syrup.

The dose a tea spoonful or more according to the age of the patient. A dose of the syrup of poppy may be given at bed-time, to procure sleep; but if the patient is beyond six years of age, eight or ten drops of laudanum, and the same quantity of the tincture of henbane in a spoonful of warm water may be given as an enema at bed-time, and if retained will afford relief. Under the employment of these means the health of the child is restored, and the affection slowly gets better, though in some instances it has been so serious as to prove fatal. It may be proper to remark that Sir A. Cooper, who has treated of this affection in his lectures, recommends the application of a wash formed of calomel and lime water to the parts, and to give calomel and rhubarb combined with jalap internally; and as cases may occur in which this may be necessary, it is easily prepared, by rubbing two drams of calomel with half an ounce of mucilage of gum arabic, and adding gradually a pint of lime water. This application usually goes by the name of the black wash. This affection is most common among the children of the working classes in cities and great towns, where sufficient attention is not given to regularity of diet, air, and exercise, but especially from the want of cleanliness, although it will occur in individuals who have not been so circumstanced

GENTIAN or the *Gentiana lutea.* This plant is one of the most powerful bitters we possess, is indigenous in many parts of Europe, and a native of the temperate zone. Its virtues may be extracted either by water or proof spirit; the root is the part employed in medicine, and has long been considered as a valuable stomachic. Besides the substance in which the bitter quality more immediately resides, it contains a considerable quantity of mucilage, which is soluble in water only. Gentian root possesses the properties of the class of bitter medicines in an eminent degree, being free from the admixture of any other substance, which renders it nauseous or disagreeable to the digestive organs. It is used in the form of extract, infusion, tincture, and wine. The compound infusion is made by macerating a dram and a half of the root cut in small pieces, the same quantity of dried orange peel, and double the quantity, or three drams, of dried lemon peel, both cut small, in a pint of boiling water, for four hours. If two ounces of the tincture is added to this infusion, it will keep good for a few days in a cool place, and is a most valuable stomachic medicine in doses of half a wine glassful three times a day. The compound tincture is made as follows:—

Gentian root sliced, one ounce,
Dried orange peel, half an ounce,
Lesser cardamom seeds, bruised, two drams.
Proof Spirit, (Whisky or Brandy,) one imperial pint.
Macerate for seven days, and strain or filter with expression.

This is a valuable tonic and stomachic tincture, but, taken undiluted for a length of time, has been accused of creating a taste for spirituous liquors. Travellers, however, and those who find it inconvenient to make the infusion, will find this a very convenient form; as two or

three tea spoonfuls in a glass of cold water, will produce every good effect of the infusion. Indeed, it is an excellent medicine for those who have returned from a warm climate with impaired digestion, and may be added to a glass of wine an hour after dinner: the same dose an hour before meals will be found of great service to the aged and infirm who may suffer from indigestion; but it is highly improper for the young and plethoric to indulge in bitter tonics and stimulants. The lesser centuary is one of the best substitutes for gentian that can be found, and in the same proportions can be made either into an infusion, extract, tincture, or wine.

GESTATION, signifies that kind of exercise given to the body by foreign means, whilst it seems to be at rest itself; such as carriage exercise, riding on horseback, &c. Gestation is also used to denote the period during which a woman carries the fœtus, from conception to birth. See *Pregnancy*.

GIDDINESS OR VERTIGO; is a symptom rather than a disease: the patient has a dimness of vision, and is unable to direct his motions, owing to the apparent unsteadiness of surrounding objects. Giddiness is not unfrequently the forerunner of serious disease of the brain, as apoplexy, &c.; whilst in other instances it proceeds from a disordered state of the stomach, as in sea-sickness, indigestion; and at other times it is a mere nervous affection, as when caused by mental emotions.

GILLY FLOWER, OR JULY FLOWER, OR CLOVE PINK; the *Dianthus Caryophillis*. The flower of this plant, which is the part used, has a pleasant aromatic smell, somewhat resembling that of cloves. Cultivation has produced a great many varieties, and it forms one of the prettiest ornaments of the flower garden. The officinal variety is distinguished from the others by a uniform deep crimson colour, and showing the edges of its petals entire, not crenated as the others. It is scarcely to be met with pure in Scotland, and carnations are frequently substituted for it, as they give out a similar colour. The only preparation used in medicine is a syrup, and it is employed more for its fine colour and flavour, than for any medical virtue it possesses. It is made by macerating one pound of the fresh petals without the heels, in three pints of boiling water, for twelve hours, and then straining and dissolving five pounds of refined sugar in the strained liquor, so as to form a syrup: the syrup may be prepared in the same way as honey of roses. As the beauty of the colour is greatly prized, no force should be used in straining the infusion, and as the flowers can only be had fresh at one season, it is frequently adulterated, or rather a syrup of infusion of cloves coloured, with cochineal, substituted in its place. Where it is necessary to give a medicine a pleasant colour and flavour, it may be used, but it is of no consequence as a remedial agent, further than rendering less agreeable compounds more fascinating, an object of much greater importance than is generally imagined. Indeed we have frequently seen the addition of this syrup, or the infusion of syrup of red roses to a mixture, insure its being swallowed and retained, when it would otherwise have been refused, or even if swallowed immediately rejected; so that medicines of this class are not to be despised or overlooked. The sugar and infusion are not to be brought to the boiling point, otherwise the flavour would be dissipated. See *Syrups*.

GIN, GENEVA, HOLLANDS. One of the staple articles of Dutch manufacture and commerce, and one of the safest and most agreeable spirits in use. It is distilled from malt, rye, meal, &c., and juniper berries are added to it in the second or last distillation. It is a powerful stimulating diuretic, and is occasionally useful in dropsical affections.

GIN, BRITISH. As foreign gin, or Hollands, is sold at a very high price, and as gin punch is often useful in the practice of medicine, an excellent substitute may be prepared as follows:—

Fresh picked juniper berries slightly bruised, one pound.
Bruised carraway and sweet fennel seeds, each two ounces.
Parsley seed, one ounce.
Proof spirit, one gallon.
Macerate two or three days and strain.

If a still can be procured, the whole ingredients, after macerating for twelve hours, may be put in the still, along with one gallon of water, and one gallon only drawn off by a slow char fire. The tincture, however, without distillation, will answer almost equally well as a medicine. Some add two onces of dried angelica root, but the juniper berries alone, if of good quality, will form an excellent substitute for the more expensive foreign liquor. The best malt whisky, proof, or ten degrees over proof, should be employed, as brandy would be equally expensive, and even more so than real Hollands, a spirit, which if genuine, and of proper age, is, indeed, a more pleasant but not a more efficacious tonic and stimulating diuretic than the British gin prepared as above directed. In every case, therefore, in which gin is prescribed, either spirit may be used. Two ounces of refined sugar is usually dissolved in each pint of the strained tincture, but it must not be concealed that this medicine has all the bad, as well as all the good effects of either foreign or English gin if taken in immoderate quantity, or used without sufficient reason.

GINGER, or *Amomum Zingiber*. This well-known root is indigenous in both the East and West Indies, and China, but the best is imported from Jamaica. The white and the black ginger is the root of the same plant,

differently treated. When the stalks are withered they are dug up, commonly in January and February, and are picked, cleaned, and gradually scalded in boiling water; they are then dried by exposure to the sun, and form what is called the *black ginger*. The roots which are destined to form the *white ginger* are not scalded, but are picked, scraped, separately washed, and dried very carefully, and lime is likewise said to be employed in the process. There is a very great difference in the quality, price, and appearance of ginger. The best are the largest roots, new and not easily broken; its colour should be of a light yellowish white, and have a pungent aromatic taste. The dark, soft, and fibrous kind should be rejected. *Preserved or candied ginger* is sometimes imported both from China and the West Indies, but that from the latter country is preferred. Ginger is considered as an aromatic, and less pungent and heating to the system than might be expected from its effects upon the organ of taste. It is used as an antispasmodic, stomachic, and carminative. The cases in which it is more immediately serviceable, are flatulent colics, debility and laxity of the stomach and intestines, and torpid and phlegmatic constitutions, to excite brisker vascular action. It is seldom given but in combination with other medicines.

The only preparations ordered by the colleges are a *syrup* and a *tincture*. The former is prepared as follows :—

Best ginger root sliced and bruised, one ounce.
Boiling water, half a pint.
Macerate the ginger in the water in a warm place for twenty-four hours, and strain; to the strained liquor add one pound of refined sugar, dissolve the sugar in a water of steam bath, as directed for the preparation of the simple oxymel, or vinegar and honey, (See *Honey*), and after the sugar is completely dissolved, set it aside for twenty-four hours, and if any scum rise to the top, take it off, and then bottle the clear syrup.

This is stomachic, cordial, and carminative, and is a very useful addition to purgative and stomachic mixtures. A tea spoonful is likewise a very convenient medicine for children troubled with flatulence and bellyache, and even for flatulent colic in adults.

The *tincture* is made by macerating or infusing one ounce of the root sliced and bruised, in a pint of proof spirit for seven days, frequently shaking the bottle; it may then be strained or filtered. This is tonic, stimulant, and carminative, and is used as a corrective of griping purgatives, and in a tonic gout when it attacks the stomach; it is frequently used in tea in doses of one tea spoonful, or even two in each cup of tea, by those whose digestion has been impaired by vinous or spirituous intemperance. In wet or damp weather travellers will find this plan of considerable service along with a hearty breakfast before setting out for the road. A tea spoonful is an excellent addition to a tumbler of cold or aerated water in warm weather, especially if a little syrup or sugar is added.

The *preserved ginger*, as imported, is an article of the materia medica, an excellent accompaniment to summer fruits and vegetables; a small bit the size of a hazel nut, will often prevent colic and its consequences, from the use of cold fruits or over indulgence in raw vegetables. Ginger beer, another well known preparation, is an excellent beverage in warm weather; the aerated or sweetened infusion of ginger, likewise sold by the name of aerated ginger beer, is a most safe and refreshing drink. A sweetened infusion of ginger may be easily converted into a pleasant effervescing draught, by adding thirty or thirty-five grains of carbonate of soda, and when it is dissolved, scattering in quickly thirty grains of powdered tartaric acid; this should be drank off without delay; or the addition of sugar and finely pulverised ginger to the water, will answer the same purpose, if the other ingredients are added. There are many recipes for the preparation of fermented ginger beer, all differing in some one respect, which may be found in almost every book on cookery. Another safe and agreeable domestic liquor is ginger wine, a safe and useful cordial to the flatulent and dyspeptic. The liquor called the ginger cordial of the shops, is prepared by mixing four parts of syrup of ginger, with one or two parts of simple syrup, or by adding one part of rectified proof spirit or brandy to four parts of syrup of ginger.

GINSENG, or *Pernax quinquefolium*, the root. This root, as imported, has scarcely the thickness of the little finger, in pieces of three or four inches long, sometimes forked transversely, wrinkled, and of a horny texture, and its colour a yellowish white externally and internally. It is now very seldom employed as a medicine, either in this country or the continent of Europe. The Chinese, however, attribute very extraordinary effects to its use, and among them it constitutes a considerable article of commerce. It has a sweetish mucilaginous taste, approaching to that of liquorice, accompanied with some degree of bitterness and a slight aromatic warmth. It is employed in cases of sterility and barrenness in the female; and in *impotentia* in the male, used in the form of powder or raspings, confections, decoctions, and infusions; but most frequently the grated root is taken dusted in soups and jellies. The Americans, since they claimed their independence, monopolize the trade to China in ginseng. It grows in Chinese Tartary, but not in half sufficient quantity to answer the demand.

GLANDS are secreting organs which elaborate from the blood special products; thus the liver secretes the bile, the kidneys the urine, and the parotid, submaxillary and sublingual glands which secrete the saliva. These being composed of an aggregation of small lobules, are named conglomerate glands; whilst those oval bodies,

which we find placed on different parts of the absorbent system, are named conglobate or lymphatic glands. There are also some bodies of a glandular structure, whose functions in the animal economy are unknown; as thyroid and thymus glands, and the spleen.

GLAUBER SALTS, OR SULPHATE OF SODA, and sometimes known by the name of VITRIOLATED NITRON, is one of the most useful and at one time, and perhaps even at this day, the most common and generally employed purging salts. It is, however, getting speedily superseded by its more expensive and agreeable rival, the sulphate of magnesia, or Epsom salts. It is found in the mineral kingdom formed by nature, but that which is used medicinally is prepared by art. Almost every word we have stated respecting the medical effects of Epsom salts, will hold good in this case; the reader may therefore consult that article for information, (See *Epsom Salts*). Owing to the extreme cheapness of the sulphate of soda, it will no doubt continue to be used in purgative enemas in public institutions, and by veterinary surgeons in the diseases of horses and cattle; but in the practice of domestic medicine, it must soon entirely give way to Epsom salts, which are now to be had in the greatest purity at an extremely low price. Sulphate of soda, deprived of its water of crystallization, which is easily effected, by putting it on a common delf plate or thin brick tile, and exposing it to a gentle heat over live cinders, when it will fall into a fine white powder, is often extremely useful as a corrector of opium. In those cases where the constipating effects of opium are likely to prove injurious, or where it fails to procure sleep and produces wakefulness, one grain of powdered opium rubbed up with two drams of the sulphate of soda, added to a glass of peppermint water, will in most cases prevent these unpleasant effects. This fact is not so generally known as it ought to be, even by the faculty.

GLEET is a thin transparent discharge from the urethra, which continues after the acute or primary symptoms of gonorrhea, or more properly *urethritis*, have ceased. There are, however, gleets that have no connection with gonorrhea as cause and effect, which will be found under the respective affections with which they are connected; and we have seen some very obstinate cases produced in the male, by a peculiar diseased state of the discharges from the female vaginal passages. There is no doubt, however, that by far the greater number of cases of gleet are the sequel of gonorrhea. The discharge is sometimes yellow or green, and may be tinged with blood after venereal or other excesses; it proceeds from the lacunæ of the urethra, which remain inflamed, and is not supplied by the vesiculæ seminales, the prostate, or other glands, as was once imagined. This discharge is often extremely obstinate, and may continue for several weeks, months, or even for a year or two; but this long continuance of the disease generally occurs in those who have reached old age, and who have indulged in too early and unnatural venereal excesses; Sir A. Cooper relates cases, proving that this disease is contagious for some months after its appearance. He maintains that so long as it continues it is contagious, and relates a case of a gentleman who laboured under gonorrhea, fourteen months prior to his marriage, and had a variety of advice, but a yellow discharge always continued. He was repeatedly told that this was not contagious, but he communicated the disease to his wife. Several instances of the same kind have been related by other authors, but we need scarcely observe that a gleety discharge in cases of stricture is not communicable. The same observation as to the contagiousness of gleet in the male, applies to the disease in the female; and it is on this account that women, in apparent health, labour under blenorrhagia or urethritis.

With respect to *treatment*, in cases where costiveness exists the bowels should be kept gently open by two or three of Plummer's pills, every third night at bedtime, and twenty drops of the balsam of copaiba (See *Balsam, Copaiba*) three times a-day, in a wine glass of ginger tea well sweetened. This dose is to be gradually increased, by adding two drops to each dose, that is, six drops daily, until sixty or seventy drops are taken at each time, and that dose to be continued stationary until the disease disappears. If the balsam fail in effecting a cure, the *Compound Tincture of Cantharides* may be taken in the same way, beginning with ten drops three times a-day. (See *Cantharides.*) We have, too, seen good effects result from the employment of cubebs, and a writer in the London Medical and Surgical Journal, recommends them in the following combination:—

Powder of cubebs, one ounce.
Compound powder of cinnamon, and refined sugar, each one dram.

Rub these ingredients intimately together, in a glass or stone mortar, and divide into eight equal parts; one of these may be taken in a wine glassfull of water, whey, or even wine, or ale, twice or thrice a-day. Individuals of a cold sluggish habit of body will sometimes find the disease most speedily arrested by the tincture of cantharides, already alluded to; and ample instructions for its preparations and use will be found under *Tinctures* in the *Domestic Pharmacopeia.* This tincture may be commenced in doses of eight drops, three times a-day, in a glass of cold water, gradually increasing the dose two drops each time, till a tickling sensation is felt along the course of the urethra, and a slight pain in making water. The medicine is then to be discontinued for a few days, and then commence as at first with

eight drops, and gradually increase until the same sensation is again felt, and if the gleet has not ceased, proceed as before. It is only in gleets of long continuance, and in cases where the system is low, that this powerful tincture should ever be employed. In such cases, however, we have seen it check the discharge, and even improve the health in the course of three weeks, when every other known remedy had failed. The tincture ought, however, to be prepared with great care, and of the best ingredients. The use of the copaiba combined with magnesia, in the form of pills, as directed in the article *Copaiba*, will likewise succeed in many cases, and they are very easily taken. Chia turpentine or Canada balsam may be substituted where genuine copaiba cannot be procured.

This mode of treatment will suit either sex, and females will bear more of the tincture of cantharides and cubebs than males. When costiveness accompanies the use of these medicines, in addition to an occasional dose of Plummer's pills, a draught may likewise be taken occasionally, consisting of six drams of the castor oil, and two drams of oil of turpentine. The compound decoction of guiacum or of bittersweet, may be used at the same time as a diet drink; they are by no means unpleasant, and one pint may be taken in the course of the day.

The tincture of cantharides or Spanish flies, sometimes accumulates in the system, even when gradually increased as above ordered, and produces severe pain and other unpleasant symptoms, especially in the male. These symptoms are most quickly relieved, by giving up the medicine; opening the bowels freely with castor oil, and by an enema composed of half a pint of strong tea or coffee, and thirty-five drops of laudanum administered at bed-time, and the patient lying quiet, so as it may remain up during the night, or for some hours. He should, likewise, drink freely of barley water, coffee, or decoction of marsh mallow roots. Where a warm bath, or even a hip bath can be procured, it will afford considerable relief.

GLOBUS HYSTERICUS. The peculiar sensation attendant on hysteria, as of a ball ascending from the stomach up the chest to the neck, and becoming fixed in the throat. This sensation is caused by flatus, and is relieved by the use of antispasmodic remedies; as, sal volatile, volatile tincture of valerian, &c.; and by attending to the state of the digestive organs.

GLUTEN, is the tough substance which remains after wheat, flour, or other farinaceous substances have been put in a coarse bag, and suspended for some time in water, which carries off the starch contained in them. It is tenacious and elastic, has a faint peculiar smell; when exposed to dry air it becomes hard and brittle, in a moist atmosphere it swells and putrifies. From the resemblance which it bears to some substances in the animal kingdom, it is supposed to be very nutritious; it exists in wheat flour in the greatest quantity, and is also found in many other farinaceous substances; it does not, however, exist in potatoes. From the changes which it produces in other bodies, it is largely employed in distilling, baking, &c.

GOITRE. An enlargement of the thyroid gland, very common in the inhabitants of the Alps, and other mountainous districts. It occurs occasionally, though rarely, in this climate, when from its prominence and painful appearance its removal becomes the subject of much anxiety. Its progress may at an early stage be retarded, by the external application of iodine ointment, and by the internal use of the various preparations of iodine, which, however, should always be administered under the eye of a judicious and skilful practitioner.

GOLDEN ROD, or the *Solidago Virgo, Aurœa.* The common golden rod is a perennial plant, found wild on heaths, and in woods, but frequently cultivated in gardens, not only for its medical virtues, but for its pleasant appearance. The leaves and flowers have been recommended as aperients, and corroborants, and have a moderately astringent bitter taste. In the form of decoction or infusion, they have been used in weakness and laxness of the bowels, especially in cases where the bladder has lost its muscular energy, and are reputed as peculiarly efficacious in stopping internal hæmorrhages; from one scruple to a dram of the powder of the flowers and dried leaves are given in honey three times a day, or a wine glassfull of the infusion or decoction of one ounce of the plant in a pint of boiling water. It is a great favourite with many of the Irish herbalists.

GOUT, in technical language denominated *Arthritis* and *Podagra.* This disease, which recurs in paroxysms, may be characterised as consisting essentially in the pain of one or more of the smaller joints of the hands or feet; most commonly of the great toe, which is attended with fever, and terminates in redness and swelling of the part. A state of general indisposition, especially various dyspeptic symptoms, precede the local affection, and by those who have had two or three previous attacks, this indisposition is looked upon as the pioneer of a paroxysm of the disease, and it is usually found that when the inflammation is established in the extremities, the stomach is relieved, and the dyspeptic symptoms disappear. Gout attacks at certain intervals, and often without any exciting cause; but it is generally connected with a hereditary predisposition, and is scarcely ever met with except among persons in the higher and middle ranks of life, and for the most part when not hereditary, may be clearly traced to habits of luxury and self-indulgence. When

gout exists in a well marked form, there is no difficulty in distinguishing it from all other affections. It is easily recognised by the state of the stomach, the part which is affected, and the nature of the predisposing and exciting causes; but in its more irregular forms it is apt to be confounded with rheumatism, and it appears, indeed, that the two diseases are sometimes combined in the same patient. M. Chomel of Paris insists that there is no essential difference between gout and rheumatism, and says that the treatment differs not in the least degree if it be regular; and adds, that the distinction between gout and rheumatism is ideal, they are but varieties of one and the same disease. In this opinion, we are not, however, disposed to acquiesce, and we have the highest authorities in medicine on our side. In those that are predisposed to gout, it may be produced by any thing that produces an increased action in the part, as by excessive exercise, a strain, or a bruise, but in those who inherit the disease, or who have once suffered severely from it, we often find it impossible to detect any assignable cause for the attack. Gout never attacks the poor, except such poor literary characters as take little exercise, whilst a considerable proportion of the rich are more or less subject to it; and this well known fact has necessarily given rise to much speculation respecting both its predisposing and its proximate cause. Indeed, we have known some anxious to claim a connection or relationship with this disease, as one to which a poor person had no right to assume. It is not, however, very easy to determine to which of the circumstances that attach to the condition of the rich, its production is to be attributed. Mere excessive eating, although it produces stomach complaints, does not generate that specific state of the digestive organs which gives rise to gout, nor do we find that spirituous liquors, which are so common among the lower classes, subject them to this complaint. It is not so, however, with wine, and Dr Elliotson quotes the case of a working man who had been in the service of a wine merchant, and in the habit of bottling and drinking wine, but very seldom to the extent of intoxication, who became an hospital patient for an attack of gout, although he had given up drinking wine for some years, and was working as a coach-maker, and the doctor concludes, from the description the patient gave of his parents, that there was some portion of hereditary tendency to the disease in the constitution. It would, therefore, appear that it depends upon the combined operation of luxurious habits of various kinds, of which indulgence in the gratifications of the table, and the want of a due quantity of bodily exercise, are probably the most important. Although, however, spirituous liquors are admitted to have no share in its production, we think we have seen it occasioned by an excessive indulgence in strong ale and brown stout. We are disposed to think that any system of diet and regimen calculated to create dyspepsia, will, in such as have a particular predisposition, engender or perpetuate gout.

There are several varieties of this disease, besides its regular forms, where it occurs in paroxysms that alternate with, or succeed to complaints of the stomach, and leave the patient in perfect health during the intervals. In some of these varieties, the different stages exhibit considerable irregularity both with respect to their degree of violence, and the order of their succession. In that which is called retrocedent, or repelled gout, after the disease has settled upon the joints of the extremities, it suddenly leaves the part and attacks some of the internal viscera, the brain, the lungs, the heart, or the stomach; and if not relieved by appropriate remedies, may suddenly prove fatal by preventing these organs from performing their ordinary functions. The disease, in its regular form, is not usually considered as productive of danger to the life of the patient, but it materially impairs his comforts and utility; for the fits generally increase both in their violence and duration, so that at length the sufferer is doomed to pass a considerable part of his time under their influence, while the joints, by the repeated attacks of inflammation, become distorted, or nearly immovable. The irregular gout, although productive of less urgent symptoms, and of little or no injury to the joints, has the effect of embittering the life of the patient by an almost constant state of indisposition. It has, too, a peculiar tendency to induce a distressing lowness of spirits, and a feeling of despondency, which are more intolerable than acute pain, and which render life a burden.

Very strange and opposite opinions have obtained among the different medical sects respecting this disease. Its symptoms were regarded as affording the most direct evidence of the theory of what were denominated the humoral pathologists, in which a morbific matter supposed to exist in the fluids, is capable of being conveyed from one part of the body to another, and manifesting its presence by appropriate results. This was, however, denied by the moderns; but the researches of chemists have given some plausibility to the doctrine of the humoralists, by discovering that gouty urine contains an unusually large proportion of lithic acid; and as the same substance has been found deposited in the joints in combination with soda, it would seem to follow, that the general mass of the circulating fluids are impregnated with it. These facts are indeed interesting, both in a pathological, but especially in a practical point of view; yet they cannot be considered as throwing much light upon the proximate cause

of this disease, as we have still to inquire how the presence of the lithic acid can produce the peculiar affection of the stomach? why it is transferred from the stomach to the joints? why it particularly attacks the small joints of the extremities? why the general and local symptoms alternate with each other? and in short, what connection or relation it bears to the ordinary symptoms of the disease? These are questions not easily answered, but it is more our immediate business to address ourselves to the visible facts of the case, and render our knowledge of these subservient to practical purposes. With respect to the prevention of gout, we might say nothing surely can be easier. As wealth has so great a share in its production, self-denial is the most powerful preventive. Let every wealthy individual, especially those who know that with the estates of their ancestors they also inherit this disease, act as if they were obliged to live by the sweat of their brow. Let them refrain from the luxuries of the table; for verily, the disease "lies in ambuscade among the dishes;" and is certainly imported from France, Spain, Portugal, Madeira, and Teneriffe, mingled with the juice of the grape. We have heard of a beneficed clergyman who assuredly never confined himself for days to his study, or fatigued himself either composing or copying sermons, or even preaching or reading them, except on extraordinary occasions, as these drudgeries were done by a deputy. He had no family to care for, and his principal amusement was turning, but he was a victim of gout, which he inherited from his father, and perpetuated by his indulgence in the luxuries of the table. This same gentleman had a gardener, who was likewise the son of a gouty father, but with the disease did not inherit wealth, and being under necessity to labour for his bread, had never known what it was to suffer from an attack of gout. Reflecting on this fact, his master agreed that he should pay a certain sum to the gardener for board, and live on the same fare as the gardener lived on, and that he should rise at the same hours, go to bed at the same time; and if he did not work so hard, take active exercise in the ordinary working hours. This plan was pursued for nearly three years, and the gouty parson never had another attack of the disease, and became so stout and hale, when on the wrong side of sixty, that his friends seriously advised him to take to himself a wife, and rear up a family which would be free from the rich man's plague. The whole secret, therefore, is to live on the gardener's fare, keep his hours, submit to his labour, and gout will cease to be an heirloom in your mansion.

We must, however, attend to the *treatment* of this disease where it already exists, and where preventive measures have not been timeously adopted. On this subject, as many different opinions have existed, as on the pathology of the disease. Gout was at one time not like other diseases, regarded as the salutary efforts of nature, but a paroxysm was considered as a curative operation, which was to be produced or promoted by the practitioner rather than as a diseased condition of the system which it was his business to remove or cure. All their attempts were then directed to increase, rather than diminish the inflammation of the joints, which they did by warm stimulating applications, and a generous stimulating diet and medicine. During the intervals of the fit, even so great were their apprehensions of the mischief that might arise from checking the efforts of what was called the *vis medicatrix naturæ*, (or that invisible power in nature which repairs her injuries), that nothing more was attempted than a mere palliative plan, which produced little or no effect. Practitioners, however, of the present day act otherwise; but there is even now two modes in which the disease is assailed. The first is that general and perhaps more judicious plan which goes upon the supposition that the disease is inflammatory, and the second a specific, or we should call it empirical plan, in which colchicum, or meadow saffron, or some of its preparations, are administered as an almost never failing cure. With respect to the first of these modes of treatment, brisk purgatives are administered to clear the alimentary canal, and attempts to moderate the inflammation of the joints, if not by the application of cold, at least by the abstraction of heat, and occasionally employing bleeding, either generally or locally by leeches, and enjoining a strict antiphlogistic regimen. After carrying this plan as far as may be deemed necessary in the circumstances of the patient, being very careful not to extend the general bleeding too far, and except in robust subjects local bleeding only should be employed; opiates in combination, such as the Dover's powder may be used with advantage in doses of ten grains at bed-time. When the fever and inflammation have subsided, a course of bitters, such as a mixture composed of six ounces of the infusion of gentian, and two ounces of the tincture of the same root may be taken in the dose of half a wine glass three times a-day. This will tend to invigorate the system, and strengthen the digestive organs, a debilitated state of which often lays the foundation of future attacks. But this object, which is even of greater importance, says Dr Bostock, than the cure of the individual paroxysm, is to be attempted more by regulating the habits of the patient, than by the employment of any particular article of the materia medica, provided the constitution be not too much impaired, and the alteration be not too hastily adopted. We find that by exchanging a life of gluttony and indulgence for one of temperance and ac-

tivity, we are generally able to accomplish the desired effect." Simple, however, as this plan may appear, it is but seldom that the friends and medical advisers of the patient are able to put it into execution. So far wedded are many to their accustomed indulgences, that unless where a ray of conviction darts on their minds, as in the case of the gouty rector, that they shut their ears to salutary counsels, and resign themselves to pain and disease, in preference to health and comfort, when they are to be purchased at the expence of renouncing their luxurious, we had almost written beastly, habits and propensities.

With respect to the specific mode of treatment, meadow saffron was first introduced into practice as a secret or quack medicine for the cure of the gout, under the name of *Eau Medicinale*, and its composition was soon discovered. Colchicum, or meadow saffron, a most powerful narcotic vegetable poison, was found to be its principal constituent. This plant, however, like others of its class, is capable of doing serious mischief, if injudiciously employed; it is likewise calculated to effect great good. It is not indeed to be tampered with, and as those who require to employ it for the cure of gout, seldom place themselves beyond reach of medical aid, we shall content ourselves by referring them to the article on *Meadow Saffron*, in which they will find full information on the mode of preparing and administering this valuable remedy. We have likewise seen the *Arum Emulsion*, when properly prepared and used, as directed in the article *Arum*, of the greatest benefit in this disease. There is another remedy, not very generally known, which often affords relief by giving, like the arum, a determination to the surface, and by that means shortening and relieving the paroxysm.

Savine Pills.

Extract of Savine of a treacle consistence, two drams.
Oil of Savine, twelve drops.
As much finely powdered savine as will reduce the mass into a soft pilular consistence, which is to be intimately beaten together, and formed into thirty-six pills.

Arthritic Ale.

Dried savine tops bruised,
Best hops, each half an ounce.
Guiacum raspings, or shavings,
Sassafras, do. do., each two ounces.
New table ale or beer, one imperial spirit gallon.
Place the articles in a thin linen sausage-shaped bag, and suspend them in the beer, while yet in a state of fermentation.

Two or three of the savine pills, and one imperial gill of the arthritic ale, well warmed, are to be taken every two hours, till a prickly heat and moisture is felt on the surface. This often affords the most effectual relief both in gout and rheumatisms. In robust subjects, bloodletting should always be premised; but in other cases, where there is not too great fullness, it is by no means necessary. See *Rheumatism*, and the other articles referred to in this paper.

GRAINS OF PARADISE, or the *Amomum Grana Paradisæ*, or the *Cardamomum Magis*, the greater cardamom seeds. The name of these seeds cannot fail in creating an interest in the knowledge of their virtues which, we are sorry to state, rather meets disappointment. They are small brown seeds not quite so large as a peppercorn, and larger than the lesser cardamom seeds. They possess aromatic and carminative qualities, and are sometimes substituted for the more expensive lesser seeds. They are used in the manufacture of gin, porter, and some other liquors, and as a cheap carminative, their virtues being somewhat similar to those of ginger, but to most people they are not so pleasant. However, they are a cheap wholesome spice, and may occasionally be substituted for the finer flavoured and more expensive articles of that class. In veterinary medicine, they are sometimes combined in the form of powder with aloes and soap, as a purging ball for horses.

GRANULATION. It is common with surgeons, on inspecting a wound, to say that healthy granulations are springing up, and by this they mean those little grain-like fleshy bodies, about the size and form of a mustard or coriander seed, which form on the surfaces of ulcers and suppurating wounds, and serve both for filling up the cavities, and bringing nearer together and uniting their sides. When they obtain to any great extent, and shoot out beyond a certain length they are sometimes called proud flesh, and are often very improperly interfered with. This process is called granulating, or incarnation, and the substance formed is called granulations. The process will be found more particularly explained in the articles on *Ulcers*, &c.; suffice it here to state that the colour of healthy granulations is a deep florid red, and when livid they are unhealthy, and have only a languid circulation. Granulations of a healthy character on an exposed or flat surface, rise nearly even with the surface, or to the elevation of the surrounding skin, and often a little higher; but when they exceed this, and take on a growing disposition, they are unhealthy, and become soft, spongy, and without any disposition to form skin; in fine, these become, in vulgar phraseology, proud flesh. When such extra growth takes place they assume a conical or tapering form, whereas healthy granulations are always prone to unite to each other so as to be the means of uniting parts, and in their shape resemble a number of little round flesh grains with the one half sunk in the substance, and the other half appearing with their rounded form above the surface. See *Ulcers*.

GREGORY'S MIXTURE. The compound powder of rhubarb and magnesia receives the above name, from having been a

favourite prescription of the late Dr Gregory of Edinburgh. Its composition is as follows:—

Take of best calcined magnesia, eight parts.
—— Powdered rhubarb, two parts.
—— Ginger, one part.
Then mix the ingredients well in a mortar.

This powder is a gentle laxative and stomachic, and is given in doses of from one to four tea spoonfuls in a little peppermint water; when intended for very young children, the ginger had better be omitted.

GRIFFITH'S MIXTURE. This celebrated, but rather unchemical mixture, is now denominated the Compound Mixture of Iron. It is prepared as follows:—

Take of myrrh powdered, one dram,
—— Subcarbonate of potash, twenty-five grains.
—— Rose water, seven ounces and a half.
—— Sulphate of iron powdered, one scruple.
—— Spirit of nutmeg, one ounce.
—— Refined sugar, one dram.

Rub together the myrrh, the subcarbonate of potash, and sugar, and during the rubbing or trituration, add gradually first the rose water and spirit of nutmegs, and last the sulphate of iron. Pour the mixture immediately into a proper glass bottle and stop it close. This preparation is the celebrated mixture of Dr Griffith's; but as we have already stated, it is unchemical; a decomposition is effected in forming the mixture, and a subcarbonate of iron, and a sulphate of potash produced, suspended with the other ingredients.

This composition is however, found to be an excellent, because efficacious, tonic, and emenagogue, and is often useful in hysteria, and a difficult and scanty menstruation, and in what is called chlorosis or green sickness, from want of exercise in the open air. In these cases the circulation is weak, but the bowels should be thoroughly opened by two or three doses of the compound aloetic pill before commencing the use of the mixture, which may be taken in doses of from two table spoonfuls to half a wine glassfull, two or three times a day.

GROATS. When oats are dried and freed from their husks they are called groats, and by some grits. They are made use of in broths, either alone or with a portion of pearl barley. They are likewise used for gruel, and when boiled down into a jelly form an excellent article of diet either for the sick or well. They should be carefully freed from any portions of the husk that may continue to adhere, and this may be done with a pair of bellows, or by tossing them from one plate to another, so as the wind blowing from the mouth may carry away the refuse.

GROG, as it is used in the navy, is composed of one part of rum or brandy, and two or three parts water. All the arguments adduced against the use of ardent spirits, in the several articles in which their effects on the human body have been considered, may be applied almost with equal force against grog. This is the favourite liquor of seamen, and it is furnished to the royal navy by the sanction and orders of government. Some, however, of the most distinguished commanders, and naval physicians, and surgeons, have deprecated its use as highly pernicious, both to the health and morals of seamen, and have proposed the substitution of wine or beer, either of which would certainly be preferable to grog, especially the latter, (see *Beer*), which is an excellent antiscorbutic. Among those who have taken an interest in the matter, Admiral Waldgrave and Drs Trotter and Robertson, deserve more especial notice. The Admiral proposed, from having witnessed the pernicious effects of grog, to serve out a wholesome and genuine wine in lieu of spirits; that many lives might be saved, and the naval hospitals less crowded with scorbutic patients, two thirds of whom are lost to the service either by desertion, or the accumulation of fresh disease. The Admiral having consulted Dr Trotter on this, and other topics, the Dr replied, "What I have particularly observed in those communications, is an increase of the scorbutics during the use of grog. This has been long known, but never so clearly ascertained; with respect to diluted spirits or grog, instead of wine or beer, it is certainly an unsalutary substitute. The use of it ought to be checked by every prudent precaution. Whatever exhilarating effects and pleasing sensations it may excite, it is, of all stimulants, perhaps the most dangerous to indulge in. Beer and wine, (the Dr might have added, in moderation), as abounding with sugar and mucilage, are nourishing and healthful, but diluted spirits have a very contrary tendency. Grog exhausts and debilitates the constitution, as communicating a more sudden stimulus to the stomach; it is of all liquors the most likely to induce a habit of dram drinking, with all its horrid consequences." The combined evidence of these gentlemen, who had so extensive a field for observation, and who were assuredly no enemies to seamen, but their most devoted friends, ought to have some weight with reflecting and intelligent seamen. Beer made of sugar or molasses, with a small portion of malt, of the ordinary strength of table beer, might be easily substituted for grog, and an additional allowance of tea, cocoa, and coffee, especially the latter, allowed. Diluted wine on some stations might be used, and when more care is now taken in providing and preserving good water for long voyages, and carefully filtering, it will avail the sailor to withold his grog.

Let filtering machines be introduced into every vessel that takes a longer voyage than that of a week or ten days, and then let grog be withdrawn without delay. Let us not forget that there are grog drinkers on shore as well as at sea, and those too who can neither plead the want of pure water, or good small or ginger

beer; and we can assure such, that if grog drinking is hurtful to the sailor, it is an hundred-fold more so to the landsman, especially to the inhabitants of cities and towns, and more especially those who follow sedentary occupations, and all trades and professions which require much mental, but little physical exertion.

GROUND IVY, ALEHOOF, OR GILL, the *Hederacia Glecomia* of Linnæus. Ground ivy tea has long been a favourite with the aged in many quarters of our island, and although it is not so expensive, and to some not so agreeable as the Chinese herb, made into a syrup it is esteemed, and not without some reason, an excellent remedy in obstinate coughs. Suffice it to say, that it was once deemed of so much importance, that the English parliament framed an act regarding its use, in the preservation and clarification of ale, and hence its vulgar or common name. No less a man than the learned and virtuous Sir Wm. Temple, one of the greatest ornaments of English literature, thus writes respecting it in his Treatise on Health and Long Life; "Alehoof or ground ivy," says Sir Wm. "is in my opinion of the most excellent and most general use and virtue, of any plants we have among us. It is allowed to be most sovereign for the eyes, *admirable in frenzies*, either taken inwardly or outwardly applied. Besides if there be a specific remedy, or prevention of the stone, I take it to be the constant use of ground ivy, whereof I have known several experiences by others, and can, I thank God, allege my own for about ten years past. This is the plant with which all our ancestors made their common drink, when the inhabitants of this island were esteemed the longest livers of any in the known world; and the stone is said first to have come amongst us, after hops were introduced here, and the staleness of beer brought into custom by preserving it long. It is known enough how much this plant has been descried, how generally soever it has been received in these maritime northern parts; and the chief reason which, I believe, gave it vogue at first, was the preserving beer upon long sea voyages; but for common health, I am apt to think the use of heath or broom had been of much more advantage, though none yet invented are of so great and general use as that of alehoof, which is certainly the greatest cleanser of any plant known among us, and which, in old English, signified that which was necessary to the making of ale, the common or universal drink heretofore of our nation." This for Sir William; the faculty, however, with a few solitary exceptions, have relinquished the use of alehoof for these many years. A most respectable London apothecary proposed curing the late revered King George the Third, of his mental alienation, by the use of ground ivy juice. The royal physicians refused, however, to try the remedy. We are not disposed to attribute so many virtues to simples, as was once the fashion; but we think that many of our indigenous plants, and alehoof among the number, have been too unceremoniously thrown aside. There are, however, some who yet use it, even in the brewing of ale, and save one half of the expense of hop, by the use of equal parts of the alehoof.

The juice or strong infusion certainly tends to quiet nervous irritation; and many who are afflicted with gravel, like Sir Wm. Temple, attribute their freedom from stone in the bladder, to the constant use of ground ivy tea. The ground ivy should be gathered when in flower, and carefully dried and preserved. From half an ounce to an ounce of the dried herb may be infused in a pint of boiling water, and sweetened with sugar or honey. When taken warm after a dose of Dover's powder, it produces a profuse perspiration, and quiets nervous irritation, while it relieves the pains of rheumatism and gout. In fine, ground ivy may be used with the best effects, by hysterical and hypochondriac invalids.

GUIACUM, or *Guiacum Officinale*, or *Gum Guiacum*. The Guiacum tree is a native of the West Indies, and the wood contains a large quantity of a peculiar matter of a resinous appearance, which either exudes spontaneously from incisions made in it, or is expelled by heat. Guiacum, when thus obtained, is a body of a greenish colour, semi-transparent, brittle, and having a vitreous fracture, without much taste or smell, but exciting a strong sensation of heat in the fauces. It had long been considered possessing all the chemical and physical properties of a resin; but from experiments made, it has been found to have some remarkable peculiarities. It is soluble in alcohol, ether, the alkalies, and some of the acids. With respect to its medical virtues, it is a powerful stimulant, promoting the secretions and increasing the heat of the system. It is principally employed in chronic rheumatism, and has at different times attained a high degree of reputation for its efficacy in relieving the pains which are left in various parts of the body by syphilis, or by the treatment it has been thought necessary to prescribe for the cure of this complaint. The ammoniated tincture is the best form in which it can be administered, the dose being a tea spoonful given in milk.

This very important article of the materia medica is ordered in the pharmacopeia, as in the form of decoction of the wood, and in the form of mixture, and simple, and ammoniated tinctures of the resin or gum, as it is sometimes improperly called. The wood likewise enters into the compound decoction of sarsaparilla, and the resin into the compound powder of aloes and Plummer's pills. The compound

decoction, which is likewise called the decoction of the wood, is prepared as follows:—

Raspings, or chips of guiacum wood, three ounces.
Raisins, stoned, two ounces.
Chips, or raspings of sassafras root, and liquorice root cut in thin slices, each one ounce.
Water, ten pints.
Boil the guiacum with the raisins over a slow fire, down to one half, and add the roots about half an hour before the decoction is removed from the fire.

The above is the formula given by the Edinburgh college, but we usually employ double the quantity of the ingredients. This is prescribed in cases of chronic rheumatism, the sequel of venereal complaints, scrofula, and cutaneous diseases, in doses of four ounces, that is, a gill, or even a gill and a half, three times a day. It proves stimulant and diaphoretic, and in all these cases to which we have alluded, we have frequently found it very useful. We, however, substitute the extract of liquorice or Spanish juice for the root, when the root cannot be procured good and fresh. The mixture is ordered to be prepared as follows:—

The gum resin of guiacum, one dram and a half.
Refined sugar and mucilage of gum Arabic, each two drams.
Rub the guiacum with the sugar, then with the mucilage, and gradually add half a pint of cinnamon water, continuing the rubbing while the water is gradually poured on the other ingredients.

This mixture is used in doses of a large table spoonful or two, or even to the extent of a small wine glassful, night and morning, diluted with warm barley water or gruel, or a sweetened decoction of the guiacum wood. The yolk of an egg will answer the same purpose as the mucilage of gum Arabic. It is of great advantage in rheumatism, retrocedent gout, and the dropsical affections of the aged. The simple tincture is prepared by dissolving four ounces of the gum resin of guiacum bruised in one pint of rectified spirit, or common malt spirits, or brandy of the same strength. The ammoniated tincture is made by dissolving four ounces of the gum resin bruised in a pint and half of aromatic spirit of ammonia; or as it is sometimes called volatile aromatic spirit. These tinctures should be placed in a warm situation, and frequently shaken till the guiacum is dissolved, when they may be poured off clear. The dose of the simple tincture is from one to four drams at bed time, taken in some thin warm mucilaginous drink, such as barley water, linseed tea, very thin made sago, or water gruel, and the dose of the ammoniated tincture, is from one to two drams. This latter tincture requires, however, to be more diluted than the former, especially if taken in the large dose of two drams. Milk or whey will answer as a vehicle for taking those medicines. The gum resin is sometimes taken in powder, in doses of from five grains to one scruple in jelly or honey; in larger doses it purges.

GUINEA WORM, *Dracunculus*, or the *Felaria Medenenses*. This is a species of worm which frequently annoys the inhabitants, especially the natives and slaves in the warmer parts of Asia, Africa, and America, and is not unfrequently imported into this country by sailors and others from our Indian possessions. Our army while in Egypt suffered very severely from the guinea worm, which is developed in the subcutaneous cellular tissue, generally of the lower extremities, especially the feet. It has been met with, however, in nearly all the superficial parts of the body, even beneath the conjunctiva of the eye, and several have been known to co-exist in the same patient. In 184 cases mentioned by Sir James Macgregor, the dracunculus occurred 124 times in the feet, thirty-five times in the legs, eleven times in the thighs, seven times in the hands, twice in the scrotum, and likewise twice in the groin and on the body. It occurs in all ages, and in both sexes, and appears to be endemic in the tropical regions of Asia and Africa, where it appears generally in the hotest seasons. It is by no means confined to the natives, and many facts tend to show that it may be communicated from one individual to another; Dr Lend and others are of opinion that Europeans, on visiting the countries where it exists, become affected with it by contact with the negroes. In America it is said to make its appearance almost exclusively amongst the negroes, and chiefly among those who are newly arrived from Africa. There are specimens in several museums extracted in this country from persons recently returned from the tropics, and there was one extracted from the leg of a sailor in the London hospital, where it had been imbedded for two years. From some observations by Sir J. Macgregor, it would appear that the disorder originating these worms prevails at times in an epidemic form. This he mentions, that some troops having embarked after a residence at Bombay, were attacked while at sea, so generally that out of 360 as many as 161 became affected with it. In the hospital of the Pacha of Egypt, there are sometimes as many as 100 patients affected with it at the same time. Little seems to be known, that can account for the development of this parasite, though authors have speculated abundantly on the subject. It has been noticed, however, that it occurs much less frequently amongst the officers than the common soldiers, and those who occasionally lie on the ground, or go about with their feet and arms naked.

The guinea worm may, and frequently does remain imbedded beneath the skin for many months without occasioning any inconvenience, but sooner or latter it excites irritation and inflammation in the structures around, which vary in severity according to the constitution of the individual and the situation and size of the worm. These local symptoms are preceded usually by slight derangement of the system

generally, and the existence and appearance of the worm is indicated by the formation of a vesicle or pustule, which bursting, gives exit at a circular aperture, either immediately or after suppurating for a day or two, to the head of the worm; but sometimes previous to this a creeping sensation or uneasiness is felt under the skin at the spot where the worm lies, with a superficial cord-like elevation on the surface. When situated about the fingers or toes, the worm is often productive of much suffering, and it is with difficulty got rid of. When deeply seated, it sometimes causes considerable fever, great swelling, and tedious abscesses and sinuses, giving out a serous, ill-conditioned discharge for many months without the worm making its appearance. Indeed, the smallest portion of the worm being allowed to remain will almost infallibly produce the same painful symptoms; a case of this nature came under our own notice in the person of a Chinese sailor who months before had the greater proportion of a worm extracted from the leg.

The *treatment* consists in the cautious and gradual extraction of the worm, special care being taken to avoid breaking it across, as this accident is liable to be followed by an aggravation of the inflammation, and the formation of sinuses in its course, together with great constitutional disturbance. These unfavourable effects are attributed by Hunter to the contact of dead animal matter with a large extent of living surface to which it now bears the relation of a foreign body, such violent symptoms being rarely seen so long as the dracunculus is alive and uninjured. When the worm protrudes, it should be laid hold of and gently drawn out from its resting place as far as possible. The part removed should then be secured at the aperture with a strip of plaster, or tied to a piece of stick, and the traction may be repeated once or twice in twenty-four hours, until the whole worm is brought away; a process often requiring many days, or even a month for its completion. Great care is to be taken not to break the worm, as such an event would greatly aggravate the disease it has occasioned. Some recommend cutting down upon it, and extracting it at once, but high authorities consider this bad practice. After it is extracted the part is to be bathed with tincture of myrrh, or compound tincture of benzoin, and afterwards dressed with basilicon ointment, in every ounce of which has been mixed one dram of finely powdered red precipitate. In cases where there has been much constitutional disturbance, the same general treatment may be adopted as we have recommended under the article *Chancre*, to which we refer.

GULLET. The gullet, or œsophagus, is the canal by which the food passes from the mouth into the stomach. The walls of this tube are composed of muscular fibres, lined by a mucous membrane; the gullet commences at the lower part of the pharynx, then passing downwards behind the windpipe, and inclining a little to the left of that tube, it passes along the back part of the chest, and perforating the diaphragm, it terminates in the stomach. (See wood-cut of *Alimentary Canal* accompanying that article). Under the present head we intend to treat of those diseases and accidents to which the gullet is liable, as its functions have been already described in the article on *Digestion*. Stricture or contraction of the gullet may be the result of inflammation, caused either by the application of irritating substances to the parts, or arising spontaneously. The prominent symptom in this disease is the difficulty of swallowing; the patient being frequently unable to swallow any thing but fluids. The contraction is generally situated at the upper part of the tube behind the windpipe, and ulceration may occur there so as to cause a communication between the two tubes, and then we find that the patient expectorates viscid mucus tinged with blood, or even large quantities of pure blood; but in such cases, the disease necessarily terminates fatally in a short time, and often suddenly from suffocation. In other cases the stricture or contraction is so complete as scarcely to allow the passage of even fluid aliment, and the patient must then be supported by nutrient injections, whilst means are tried to dilate the calibre of the tube by the introduction of bougies, indeed, the use of these instruments is the principal means on which we have to depend in treating this disease. A bougie sufficiently small to pass through the contracted part is introduced and retained for a short time, and the size of the instrument is increased so as to cause a gradual dilatation of the passage. Spasmodic contraction sometimes occurs, and indeed it is a very common symptom in hysteria; it must be relieved by bleeding, the exhibition of anodynes and antispasmodics, as ether and laudanum, in doses of twenty drops of the former to fifteen of the latter, and sinapisms to the neck and chest, and the application of hot bottles to the epigastrium. If the spasm be caused by swallowing acrid or poisonous substances, the patient should be made to drink freely of bland and mucilaginous fluids, as milk, gum, barley water, lint-seed tea, &c.; so as to allay the irritation. Where symptoms of inflammation arise, these must be combated by bleeding, anodynes, diaphoretics, and fomentations applied externally to the neck.

Foreign bodies sometimes lodge in the gullet and require removal by surgical means; pins or fish bones sometimes pass into the gullet and lodge there, but more generally they stick in the folds of the fauces and upper part of the pharynx. The foreign bodies which generally

get impacted in the gullet are pieces of tough meat, gristly, and small coins, buttons, &c. The accident frequently occurs to children from playing with the last mentioned articles in their mouths. The treatment depends much on the nature of the article swallowed. If it be sharp pointed or of such a form as might lacerate parts in its descent, we must endeavour to draw it upwards, and extract it by means of a flat blunt hook, or a pair of curved forceps, and the same method should be employed wherever the foreign body can be reached and felt with the finger. But in cases where tough pieces of meat, buttons, or coins, have passed further down the passage, attempts at extraction are generally useless; and the foreign body should then be pushed downwards by means of a probang or flexible piece of whalebone, with a bit of soft sponge mounted on its extremity. In some cases the foreign body does not pass into the gullet but into the windpipe, in common language, "goes the wrong way." This accident is indicated by the violent efforts of the patient to expel the foreign body by coughing, and the threatening symptoms of suffocation which take place. If the body be not of such a size as to be readily coughed up, the only chance for the patient's life is by the early performance of the operation of opening the windpipe to prevent immediate suffocation, and allow the body either to be forced out or extracted. This same operation may also be required where a large and firm substance is impacted in the gullet, defying the ordinary means used for extraction, and pressing on the windpipe so as to impede respiration. See *Tracheotomy*.

GUM has been denominated the mucilage of vegetables, and is in many instances an exudation that issues spontaneously from the surface of a variety of plants in the state of a clear viscid and tasteless fluid, that gradually hardens on being exposed to the action of the atmosphere, and condenses into a solid mass. It issues copiously from many fruit trees; but especially from such as produce stone fruit, as plum and cherry trees. Gum is produced from plants or parts of plants containing it, but not discharging it by spontaneous exudation, and it may be obtained by the process of maceration in water. The constituents of gum are carbon, hydrogen, oxygen, and azote. Gum is soluble in water, and more speedily dissolved in hot water than in cold, but is insoluble in alcohol and ether.

The principal gums are gum Arabic, Senegal, Tragacanth, and Bassora, and Iruteera gums; and in Britain we have the plum, the cherry-tree, and peach-tree gums, and a few others. Indeed, almost every vegetable contains gum in a greater or less proportion, and it has been found in the roots of the common hyacinth, and in lichens; and we are convinced it exists to a greater degree than is generally imagined in many marine vegetables. The solution of gum Arabic is called mucilage.

GUM RESINS are natural combinations of gum and resin in which sometimes the one and sometimes the other of these principles predominate. The principal resins are frankincense, scammony, aloes, ammoniacum, guiacum, opium, and gamboge. Gum resins have commonly a strong odour, and a bitter pungent taste; are solid, brittle, opaque, and almost all entirely soluble in diluted alcohol, differing in this respect from gum. They form emulsions when triturated with water, and by standing the resin is deposited, and therefore watery preparations of gum resins should always be extemporaneous. They soften by a gentle heat, but in a high degree of temperature are decomposed. They should be well freed from extraneous matters, especially opium; and when it is wished to retain them in a soft state for making pills, they must be kept in the mass wrapped in a bladder, moistened with some aromatic oil in a well covered opaque jar, as some of them are affected by the light as well as the air; but when they are to be powdered they should be cut into small pieces and laid open to dry.

GUMS. This name is applied to that dense red tissue which covers the alveolar processes of the jaw bones, and insinuates itself between the interstices of the teeth. The gums are well supplied with nerves and blood vessels, and receive a covering from the mucous membrane of the mouth, which gives them their smooth shining appearance.

GUMS, DISEASES OF THE. Inflammation of the gums frequently occurs in adults from the effects of cold, carious teeth, or after extraction of teeth; and from the unyielding nature of the tissue, it is attended with severe pain, and the inflammatory action generally extends along the mucous membrane of the mouth, giving rise to effusion into the loose cellular tissue beneath, and thus causing swelling of the cheek. The treatment consists in leeching, or freely scarifying the gums, and then inhaling the steam of warm water, or washing the mouth with borax dissolved in hot water. If the inflammation be caused by the presence of a carious tooth or stump this should be extracted, and where it is occasioned by the appearance of a new tooth, the gum at that point ought to be freely divided by a crucial incision to relieve the tension. Abscess of the gum, or gum boil as it is termed, is of very common occurrence, as the result of inflammation of this tissue. After using the means directed for the treatment of the inflammatory stage without effect, a bit of roasted fig or onion may be applied to the gum, and the steam of hot water frequently inhaled, and

whenever matter has formed, it should be evacuated by a free incision; for if this be not attended to, the matter may burrow beneath the mucous membrane, lining the cheek, and burst externally, giving rise to an unseemly scar; when the matter has been evacuated the mouth should be washed frequently with a little tincture of myrrh in water.

Sponginess and bleeding of the gums arises from many causes, as scurvy, the use of mercurial medicines, and also from a disordered state of the digestive organs, and not unfrequently from tartar being allowed to accumulate round the roots of the teeth. The best application to the gums in this disease are astringent and stimulating washes, as tincture of myrrh and bark; alum dissolved in the infusion of roses, infusion of gall nuts, and frequently washing the mouth with camphorated spirits and water; removing tartar when it has collected, and occasionally using gentle friction to the gums by means of the finger covered with a soft napkin. These means, together with attention to the state of the digestive organs, will generally prove effectual, except in sea scurvy, where they are useless unless combined with vegetable diet, lime juice, and other antiscorbutic remedies. For the treatment of the diseases of the gums in infants, see the article *Teething*.

GUTTA SERENA. See *Amaurosis*.

H

HAIR. This portion of the human body is regarded by almost every nation, savage or civilized, rather as an ornament than as a useful and necessary appendage. It is clear, however, that it derives its nourishment from the body, and that it has, like the other members, its periods of growth and decay. It is subject to disease, and liable even to be acted upon by moral and intellectual causes; some of which are perceptible, and others are not. Among the former certainly grief holds the most prominent place, as it is well known that pungent grief, sorrow, and regret has in a very short space of time turned raven black hair to a snowy white. The hairs of the human body are thin elastic dry filaments arising from the skin, and have been divided by anatomists into the bulb situated under the skin, and which they have designated a vascular and nervous vesicle, and a trunk, which perforates the skin and cuticle, and is covered with a peculiar vagina, or sheath. The colour of hair varies; its seat, however, is in the medullary juice, at least such has long been the received opinion of physiologists. The hair is differently named according to its situation: *capillus*, on the top of the head; *crinis*, on the back of the head; *circrinnus*, on the temples; *cilium*, on the eyelids; *supercilium*, on the eyebrows; *vibrissa*, on the nostrils; *barba*, on the chin; *pappus*, on the middle of the chin; *mystax*, on the upper lip; *pilus*, on the body; *pili auriculares*, in the passages of the ear. On this very interesting portion of the human body, and one on which many devote so great care and attention, it is natural to suppose that some information respecting its structure, and the mode in which it derives its nourishment from the system, would be looked for in a work of this description. For what follows on the anatomy of this ornament of man we are chiefly indebted to a sensible and judicious paper by Dr Walter Dick, on certain diseases of the skin, which appeared in the London Medical Gazette, for December 1837. That part of the hair inclosed within the skin, is the part whose exact anatomical relations it is most important to know. This part, in the scalp at least, generally presents the shape of the latter of the dermal extremity of the hair, (or that portion below the skin), being very slightly bent upon itself. The origin of the hair is in the subcutaneous tissue, and generally presents the appearance of a small blackish body, of a roundish form. This body lies at the bottom of a piliferous cyst, and minute colourless filaments, apparently vessels, may be seen entering it. The dermal extremity of the hair, which is hollow for a little way, and softish, almost pulpy, is implanted on the roundish body just described, the hollow corneous part of the hair forming a kind of sheath around the monticule, as it has been called, or the trunk, as we already named it. The connection between these two parts is not very strong, as the hair may most invariably, with a little dexterity, be plucked out without bringing along with it the monticule. Each hair is enveloped in two sacs; the inner one is very delicate, and closely applied to the hair, especially a little below what is called its neck. The outer sac is thicker and stronger than the former, and the two are but slightly connected, and are easily separated from one another. Morbid or diseased action in either of them, especially when producing effusion of fluid, would very likely intercept the nutriment of the hair, and cause it to fall out, or separate

from its attachments. In what way hair has been produced has not yet been determined. It is not yet ascertained whether the inner piliferous cyst is immediately concerned in its production, or whether the monticule secretes both the corneous substance of the hair and its colouring matter. That the monticule is principally concerned in the production of hair, is evident from the fact that no hair is ever generated after its destruction. But it seems probable to us that two different structures are concerned in the production of an entire hair, as we sometimes see the hairs become blanched while they remain otherwise natural, and continue to grow. This we think could scarcely happen if the same organ produced both the corneous part of the hair and its colouring matter.

Some writers have asserted that the hair receives a covering from the cuticle. They suppose that that membrane passes down the piliferous cyst to its bottom, and is then reflected along the hair. Others have fancied that the hair, after rising to the level of the cuticle, pushes it before it, and thus as it were mechanically takes a covering from it. The fallacy of these views have successfully been exposed by Bichat. The cuticle does not seem to be reflected at any part along the hair; but is more or less firmly attached to it at its exit from the skin, and passes only a little way down the piliferous sac. It is a curious fact, that the cuticle, or scarf skin, though permeated by myriads of hairs, sebaceous follicles, and sudoriferous canals, does not, when separated from the chircum, present a seive-like appearance as might have been expected. Various explanations have been given of this phenomenon; the most satisfactory seems to be Mr Cruickshanks, who ascribed the disappearance of the pores in the detached cuticle to the elasticity of the membranes. Hair, when seen through a powerful microscope, presents the same appearance as the cuticle, and analysis has proved that the chemical components of these two structures are nearly the same. It is highly probable, we think, that hair is formed, like the cuticle, by two different sets of organs, one set secreting the corneous substance, the other the colouring matter. Some authors, and among these Bichat, have supposed that hair possesses a certain degree of vitality, and as confirmatory of this opinion, they adduce the phenomena of the disease called *Plica Polonica*, which see. This view, however, seems to others to be erroneous, and the phenomena of *plica* can be satisfactorily accounted for by referring the seat of the disease to the piliferous bulbs and cysts. Little as we yet know on the subject, the preceding sketch may be regarded as a short digest of all that is known on the structure and physiology of the hair.

HAIR, Falling of. This is an occurrence which often takes place early in life, and produces baldness. It occurs in the sequel of fevers, and may be often prevented by shaving the head in an early stage of the disease, and repeating frequently the operation of shaving till a firm crop of hair arises. In addition to shaving, the celebrated Dupuytreu has recommended the following pommade to be applied in small quantities occasionally. Macerate a dram of powdered Spanish flies in an ounce of rectified spirits of wine for four days, and filter through blotting paper. Take five drams of this tincture and rub it in a mortar with four ounces and a half of cold hog's lard. A few drops of any essence may be mixed as a perfume. There is another ointment recommended in a foreign medical journal, viz.—

Beef marrow, six drams.
Oil of sweet almonds, two drams.
Powder of red cinchona bark, one dram.
Mix the cinchona with the oil, and add the marrow after being melted. This may be perfumed at pleasure as the preceding.

It is evident from the stimulating nature of Dupuytreu's prescription, that the ingredients must be very intimately mixed. We have no experience of the efficacy of these ointments, but from the respectable source from which they are derived, they deserve a trial, and can do no harm. (See *Baldness.*) There are other circumstances affecting the hair which deserve to be noticed, especially the case of hairy infants, which often produces great uneasiness in the minds of parents, especially mothers. Examples of new-born infants covered with hair sometimes occur, and of late years several cases have occurred; in some of children lately exhibited in the hospitals of London. The lower part of the trunk and extremities were covered with hair; but Haller saw the face, limbs, and body entirely covered. It has happened that new-born infants that were covered with long hairs were delicate and badly developed, and as they acquired strength the hair fell off without the use of any remedy. Parents should, therefore, keep their minds easy on this subject, as a cure will be spontaneously effected; and great caution is necessary before resorting to topical applications, because the skin is extremely sensible, easily irritated and inflamed, and these conditions would be followed by a decline of health, convulsions, and death.

In other cases there is scarcely any hair on the body of an infant, and this can be accounted for by a want of the normal development. It only exists at, and seldom continues beyond the first year after birth. Parry mentions a disease of the hair which he calls *mulum pilare*, which arises from the hairs being loosened at the bulbs but not expelled from the cuticle. This is most common on the backs of infants. The disease is accompanied by constant itching, and the evolution of irritable papulæ or pim-

ples. The treatment consists in the use of warm fomentations and bread poultices, and as soon as the hairs are loose to extract them with a pair of forceps or tweezer. The bulbs of the hair are subject to inflammation, as exemplified in *plica Polonica*, and the pilons or hairy follicles may be destroyed by the pressure of subcutaneous tumours, tinea, favosa, or scald head, and diseases of syphiloid character. Supernumerary hairs may exist in different regions of the body on which they do not appear naturally, and facts of this kind frequently occur. They are, however, of little inconvenience, if not in some exposed situation, or on the face, and even then there is little difficulty in removing them. The colour of the hair may gradually or suddenly change, more especially in adults, after violent mental emotions, or during convalescence after acute diseases; or we may observe patches of different colours on the head of the same individual. This, however, is a rare occurrence in infants or young persons. There are instances too in which the hair has become white in the sequel of fever, and afterwards regained its natural hue, and others in which the whole hair has fallen off the body, and it continued to remain completely destitute of hair. We mention these cases to put the unwary on their guard against the use of improper and dangerous remedies by attempting to restore the hair after it has been completely eradicated; and likewise by changing it from white to black or brown. The solution of the nitrate of silver, or lunar caustic, is the article advertised for changing the colour of the hair, and strong caustics of lime for the removal of superfluous hairs. The numerous oils advertised for promoting the growth of the hair, are no better than perfumed olive or almond oil. Indeed, perfumed cocoa nut oil is preferable to every other, especially that brought from Otaheite, and the islands of the South sea. It was long sold at a high price under the name of Russia oil, although procured from a very opposite region of the globe.

HAMMOCK, COT, AND SEA BED. The hammock or swinging bed is chiefly confined to ordinary seamen and inferior officers. It is made of canvas or sacking, of the form of an oblong square, the extremities or ends are furnished with small holes to admit cords, which extend about eighteen inches, and are fastened to an iron ring for the purpose of suspending the hammock on two hooks, or sometimes the ring itself is formed of the cords or lanyards. From the particular manner in which the hammocks are connected at their extremities to their supporting cords, they are in some degree gathered or collected upon the person who occupies them. This evil is susceptible of amendment by placing a wooden scantling, or piece of board, betwixt the opposite corners of the hammock. It is principally in this that the difference between the hammock and the officers' cot consists, which has a square frame which keeps it an equal width both at top and bottom, and the canvas extends from side to side, both at the head and foot; but the cot is suspended in the same manner as the hammock, by an iron lined eye at each extremity. Both of these forms of swinging beds are extremely easy, and the gentle motion tends to produce and insure sound sleep. All hammocks and cots should be furnished with a hair mattress, the covering of which should either be painted or made of India rubber water proof cloth, and the pillows, except the slips or external covers, of the same materials. A stout blanket, or external stout blanket cover, on the plan of a pillow slip, should contain the mattress, and if sheets are used, they should be of stout cotton; a woollen blanket, and stout cotton bed cover completes the furniture. The advantages of the cover to the mattress are very considerable; it may be removed and washed at pleasure, and the mattress itself can be washed with soap and water, and exposed to dry. The paint or India rubber prevents the perspirable matter that issues from the body being conveyed to the hair, or other substances of which the mattress may be formed, as by the frequent shifting of the cover of the mattress and under cotton sheet that may be washed away. In tropical or warm regions, a single cotton sheet, and stout bed cover of the same will suffice; but the woollen blankets should be kept for colder latitudes.

In voyages to Greenland, and indeed to all cold regions, officers and seamen who either can, or are willing to afford it, may have a wool mattress prepared and covered in the same way, or even a feather bed as indulged in on shore; but in warm countries, mattresses formed of hair, bamboo shavings, or oat chaff, are not only preferable to feathers or wool, but are absolutely necessary, as the two latter, when employed as beds, especially if not covered and painted as directed for hair, are frequently the source of disease, and nurseries of infection in warm latitudes. In cold regions there is less necessity for extending the sides of the hammock, as those who sleep in hammocks without this precaution are surrounded with their own atmosphere, and inhale a heated air, owing to the hammock being contracted around them, as already stated. The effect of this, it is obvious, may be deemed useful in very cold weather, or in high northern latitudes; but the opposite in warm climates. There is another circumstance which merits attention regarding hammocks, and which is well worthy the notice not only of the medical attendant but especially of the commanders of small vessels on long voyages, and that is the

position in which the hammocks are slung or suspended, as the sailor frequently lays himself awkwardly, with his head more depressed than his other extremity. The person who has thus lain improperly, may often on the following morning be easily discoverable by suffused eyes, and swelled and confused countenance. The proper suspension and expansion of the hammocks at their extremities are matters of more importance in warm climates than is generally imagined, as by attention to these they are exposed to the influence of the surrounding air, and if ventilation or change of air takes place, the effluvia emanating from the body and bed clothes are more easily dissipated. With respect to concealed or fixed beds on board ships, a plan most commonly adopted in coasters, Greenland, and other vessels, the same remarks as to the mattresses, pillows, and bed clothes, will apply as to those already made on the hammock and cot. There are, however, some of these beds so very close and confined, that when the lids are drawn they scarcely leave breathing room. By making the upper part of the shutters of such bed round turned posts an inch or more apart, this evil might be avoided, and in many ships small port holes, accurately fitted so as to be opened in fine weather, might be used with great advantage. Although sailors have in general two or more changes of body linen shirts, stockings, drawers, &c., &c.; they seldom think of having a second change of bed clothes. It would not be a very expensive improvement, while it would be a very great benefit, to have a few changes of stout cotton sheets, two changes at least of the mattress covering and pillow slips. On a voyage to India or Australia, if the ship touches only a few days at any of the ports, St Helena, the Cape of Good Hope, or Rio de Janeiro, those articles used on the first half of the voyage might be washed, and the mattress, pillows, &c., exposed to the air. Captains of vessels, especially those proceeding to any of the above quarters of the globe, or even to South America, Honduras, or the West Indies, should carefully inquire if the hammocks, bedding, &c., of the men they engage are clean, and suited for the voyage. Attention to this will save much trouble, and it may be the lives of those on board, as infectious diseases are often introduced on board ships by filthy bedding. The poor sailor himself will likewise be a profiter, as he will be charged a high price if furnished out of the slop chest. A supply of sheeting should be provided, and used in the tropical latitudes; and stout unbleached cotton of a width not requiring a seam is preferable to linen sheets. Blankets in the torrid zone are seldom useful, so that in the temperature ordinarily prevailing in those climates, they are considered only troublesome lumber, and the worthless sailor frequently disposes of a part if not of the whole of them the first opportunity. The woollen tegument imbibes till it is completely saturated and contaminated with filthiness; the more liquid or volatile part may indeed be exhaled and dispersed, but the grosser particles embodied in the covering remains offensively disagreeable and even dangerous, the nursery of vermin and disease. This miserable and noisome blanket is allowed to continue not for days and weeks only, but sometimes for the space of several months; nay, during an India voyage out and home, a period of perhaps not less than eighteen or twenty months. It may be observed that when the temperature is not under 70° or 68°, that one double cotton sheet or a single one, and light cotton coverlet to a person in health, will be perfectly sufficient; whereas in the circumstances, if not thus provided, the individual must either lie under a blanket or be freely exposed, and thus be liable to the operation of an unpleasant alternative. In high temperatures, even the lighter coverings will not be used, not even a single sheet, and in such a state of things, even the contact of a woollen blanket on the surface becomes disagreeable; and in lower degrees of heat down to 70°—65°, &c. the cotton coverings, as mentioned, will be much more agreeable and convenient than blankets. A chill is, however, sometimes felt towards the morning even in very warm latitudes, and it is well to have a double cotton sheet or a single one, or a coverlet, ready to cast over the body. The particular management of the quantities occasionally and contingently requisite, must be regulated conformably to the continually fluctuating nature of circumstances. Instructions surely are not necessary to establish a distinctive observance of these suggestions in the torrid or frigid zone, or in the intermediate and commonly reputed temperate latitudes. It not unfrequently happens that seamen and emigrants leave Britain in winter for India or Australia, when the thermometer is at or below the freezing point, and proceed quickly to a very high temperature of from 70° to 80°, or even 82°. In this case the bed clothing will be lightened according to circumstances; but more care is required, and there is more danger in the case of those returning from a hot climate, and arriving in a cold climate in winter. Invalids, therefore, returning home, should always be provided with sufficient warm blankets to meet the exigency of the case.

We therefore reiterate that the sufficient defence of seamen at night in their hammocks or other sleeping places, and that the dryness of these with their bed clothes, are considerations of great importance to themselves, their employers, and the community. Although

in colder latitudes, the men should be properly furnished with wearing apparel, in the day-time; if they are not properly defended in the night their healths may become certainly and materially impaired. The most diligent attention should therefore be taken that the men are always in possession of a sufficient stock of bed clothes, especially in the cold latitudes. By neglect of discreetly managing this part of their protection, sailors, hardy as they confessedly are, frequently suffer in their constitutional healthiness, and are rendered afterwards unfit for active service. As there are many worthy and humane ship owners, we trust they will see that the most careless of their seamen be provided with good articles, not at the usual exorbitant slop chest prices, but at a fair and moderate profit.

HANGING. In the article *Drowning* we have treated of the resuscitation, or recovery of persons apparently dead from that cause, and under this head we shall shortly allude to those few particulars in which the treatment of such persons differ from that of those who are found suspended by the cord. When a timid nervous individual happens to see a person suspended by the neck, they run away to inform the nearest or the first person they can find; whereas the first thing they should do is to cut down the body, or in other words, remove the ligature from the neck. The body should then be laid in the posture recommended for drowned persons; but the head and shoulders should be raised a little higher.

The measures recommended for drowned persons are also necessary in these cases. Bleeding may be, and indeed is in general more requisite in this case, as we have hinted under the recovery of animation in the apparently dead from drowning. The cord compresses the veins of the neck, and prevents the blood from the head returning to the heart; but while respiration continues blood is sent to the head. Great fullness of vessels, amounting in some cases to apoplexy, is the consequence. The jugular vein is recommended to be opened rather than a vein in the arm; but where there is no person near qualified to perform the operation, no delay should occur in adopting the latter situation. The quantity of blood to be extracted must be enough to unload and relieve the vessels of the head without weakening the powers of life; or cupping or leeches may be advantageously employed. After recovery, blood may be often required to be taken away in much greater quantity than in the case of drowning, even before the complete or partial renewal of respiration; for although the circulation is first impeded, the cause of death is the suspension of respiration, which must be the first object attended to. We need scarcely add, that where hanging is not performed by the executioner of the law, it is in almost every case in civilized society a suicidal act, as few ever think of dispatching their enemies by the rope; although there was lately a poor man in a fit of insanity choked several of his children by the cord. Suicide may, however, be said to be the cause of this mode of producing asphyxia or suspended animation.

HARELIP. The cleft upper lip is so named harelip, and greatly disfigures the face of those who are born with it, and when conjoined with a cleft palate, it is attended with great inconvenience. The operation for simple harelip should be performed when the child is from two to four years old, and if well done it will scarcely be observed that any deformity ever existed. The operation for the cleft palate must be delayed to a later period, and is an operation often requiring great skill and dexterity. Parents should, therefore, neither delay the operation nor employ those who are of doubtful surgical reputation.

HEAD. The head or upper part of the body has been divided by anatomists into the cranium, or skull, and face. It is placed upon the neck, and its cavity contains the cerebrum or brain, the cerebellum or little brain, and the medulla oblongata, or white firm medullary substance situated beneath the cerebrum, which is the commencement of the spinal marrow, and nothing more than a continuation of the medulla oblongata. Externally, the head is divided into the face and hairy part, and the common integuments of this latter are called the scalp. On the scalp is observed the vertex, or crown of the head; the sinciput, or fore part, and the occiput, or hinder part. The parts distinguished on the face are well known as the forehead, eyes, &c. The solid or bony parts of the head are a most wonderful piece of architecture, most admirably fitted to answer the purposes for which it was created. The nature of our work does not require us to enter at length upon this subject, even did our limits permit us to do so; but no one can take up a skull without being struck with its wonderful adaptation for the protection of the very important organs it is destined to contain. The head or cranium consists of eight bones, the face of fourteen; there are thirty-two teeth, one bone of the tongue, and eight bones of the internal ear, making in all sixty-three bones. (See *Skeleton*). In the shape of the heads of individuals there is a great variety; that of females is more delicate, the insertions of the various muscles of the face are not so strongly marked. The crania of different nations also vary; in the generality of Europeans the shape is oblong; in the Turk and Algerine it is round; and in the Chinese and Tartar it is broad. The cranium of the African is flattened on the forehead, and the teeth and chin are extended forward. The shape of the head of the Asiatic and

American negro also varies considerably from that of the European. Some anatomists, observes Dr Hooper, have attributed this variety in the crania of different nations to the management of the children when very young, supposing the head of the Turk to be rounded by the turban, while that of an Englishman is flattened by the chinstay. Others are of opinion that the difference in the shape is not occasioned by any such accidental means, but by natural causes, with which we are as yet unacquainted. The diseases of this division of the human body, if we embrace those of the eye, the ear, the nose, mouth, tongue, teeth, and the brain, and its appendages, with those of the external scalp and fleshy part of the face, form a catalogue of no ordinary length and importance. The diseases of the eye have been considered enough to monopolize the time and attention of one individual; those of the ear, another; and those of the teeth, is a third; leaving the remainder to the care of the general practitioner, or the physician and surgeon. We presume, however, that our work will not be searched in vain for much useful information on all the various diseases which will be found under their respective heads. Those who wish for information on the external form of the human head will find much in the works of Gall, Spurzheim, Combe, Macnish, and others on Phrenology, and the works of Lawrence and Pritchard, on the Natural History of man. See also the article *Man*, in this work; and the plates of the bones, &c. The following facts respecting the dimensions of the head in various classes of society, cannot fail of proving highly interesting to all who wish to become acquainted with the influence of cranial development on the human intellect.

Head. *Comparative size in different individuals.* In the present day, when a knowledge of the size and conformation of brain engages the attention of all classes, and when a knowledge of its structure is the acquisition of almost every well educated youth; it is not altogether foreign to the objects of this work, that we devote a short space to the consideration of what has not inaptly been denominated the aristocracy of the brain. The facts are derived from the communication of a wholesale hatter to a phrenological journal, and is certainly a valuable contribution to the physiology and natural history of man. 'The brain,' says the prince of living physiologists, 'is the material organ of thought.' 'The volume of the brain is generally in direct proportion to the capacity of the mind.' The only way of estimating the volume of the brain in a living person is to measure the dimensions of the skull; every other means is uncertain. Setting phrenology aside then, and speaking simply as physiologists, it will be seen that we have two important facts on the very best authority: 1. The size of the brain is an indication of mental power; 2. That the interior bulk of the head corresponds with the bulk of the brain. Now, the hatter gives us the horizontal girth of the head, and this, though it does not include the depth, we know affords a pretty accurate measurement of the actual magnitude. If Magendie speaks the truth, therefore, these persons have the means in their own hands for guaging not only the heads, but to a certain extent the intellects of all the people whose heads they cover. Hatters' measure, the writer informs us, is the mean between the longer and the shorter diameter of the head. Thus, a hat the cavity of which is 8 inches long, by 7 broad, is said to be $7\frac{1}{2}$ inches diameter hatters' measure. The blocks for manufacturing hats are made on this principle, varying by 1-8th of an inch from 5 inches, the hatter's diameter of an infant's head to $7\frac{3}{4}$, that of a man's fullest size. The various size of English made hats range from $6\frac{1}{2}$ to $7\frac{1}{2}$ inches of this measure, the medium and most general size being 7 inches. The range of the female head is $6\frac{3}{8}$ to $7\frac{1}{2}$. The reader must not think that the difference in heads is trifling because the interval seems to be small between these extremes. If he takes the trouble to calculate the cubic contents of two brains of the diameter of $6\frac{1}{2}$ and $6\frac{3}{8}$ inches, he will find that the proportions are as 25 to 46, or that the one is almost twice as large as the other. The London wholesale hatter has the means of comparing the heads of both the rich and poor in London, and the heads of the upper and middle classes of London with those in the country. Take 7 inches as the medium size for all England, he finds, 1. That the upper classes in London have heads above the medium size; 2. That the lower classes have heads below the medium size; 3. That the middle classes have heads of a size intermediate to the two. In this, the hatter may, however, be mistaken as to the average size of the heads of the middle classes, if he judges from the quality of the hat, as the merchant and wealthy tradesman often wears as fine a hat as my lord, or even his grace; but we shall give the statements in his own words. 'Commencing with London, a perceptible difference will be observed between the higher and lower classes of society. In the former, the majority are above the medium, whilst among the latter it is very rare to find a large head. This is easily proved by the different qualities of hats in requisition by each, in the manufacturing of which a distinct difference in the scale of sizes is observed. Taking the two extremes of society, this rule will be found invariable throughout the country; the middle ranks of life forming a medium between the two. Establishments at the west end of the town confined exclusively to the service of the

higher circles, require more large hats in proportion than other hatters whose trade is confined to the middle ranks, and again the business with the lower class presents the same relation to the class above them, requiring a greater proportion of small hats than either of the other classes. These statements can be proved in a variety of ways. Take the average size of livery hats for servants, the scale will be found less than for their masters. The sizes observed in furnishing a regiment of soldiers are easily ascertained; sea-faring men and individuals connected with shipping and on the water wear a peculiar hat. The dog's hair hats worn by carters, waggoners, and the labouring agriculturist, the round-crowned shoulder hats in use by coal heavers, and porters, &c., and the common plaited hats in general request by the working classes, present great facility for judging of general measurements for the lower orders, in all of which, as compared with the finest hat made, there is a striking and manifest difference.

In the lower ranks of life, the majority are below the medium of 7 inches, and the higher classes of society above it. Not only difference of size is observed, but also a variation between the two classes exists in the circle of the head coming in contact with the hat so as to influence the measurement. The upper portions of the head, comprehending the reflective faculties, ideality and caution, come in contact to increase the general circumference of the hat in the higher classes of society; but the same effects are not observed in the lower walks of life. The circle round the head in immediate connection with the basilic region, the hat resting upon or covering the ear, will show that the size is more to be ascribed to that portion of the head than to the upper region. The slanting off of the lateral superior circumference much decreases the general measurement. The weavers of Spitalfields have extremely small heads; $6\frac{1}{2}$, $6\frac{5}{8}$, $6\frac{3}{4}$, are prevailing sizes. In Coventry, almost exclusively peopled by weavers, the same facts peculiarly are observed. From our own knowledge of this class of mechanics, whatever may be the size of their heads in Spitalfields and Coventry, we know that many Scotch weavers are men of considerable talent, and with only a very scanty portion of cultivation would shine in the walks of literature and science. We have next the provincial varieties in the counties lying north and north-east of the metropolis, Hertford, Essex, Suffolk, and Norfolk, where the head is smaller than in any other part of the empire. In Kent, Surrey, and Sussex, the heads are larger. In the interior counties towards the west, and in Wales, Devonshire, and Cornwall, they are above the medium London size; but the northern counties, Yorkshire, Lancashire, Cumberland, and Northumberland produce a greater number of large heads than any other part of England. The full size, which in England is $7\frac{5}{8}$, is here enlarged to $7\frac{3}{4}$, and even 8 inches, and what is a large size in Essex and Hertfordshire, is below the medium, and almost a small size in Scotland. The scale of measurement in furnishing hats for a Scotch regiment is larger than an English one. The wholesale hatter acknowledges that he is not acquainted with all our provincial varieties, but he notices the fact that in orders sent to London from Aberdeen an unusual number of large sizes is required. The following anecdote is related of the Scotch and London heads of the lower classes. A manufacturer received an order from a London house to send off immediately a peculiar quality of hats. Having the same description of hats ready packed for Scotland, promptly he sent that packet to oblige his London correspondent, without any regard to the sizes of the metropolis. To the mortification of the individual to whom they were envoiced, they proved to be perfectly unsaleable, from the whole of them being very large in size. So much for the comparative quantum of Scotch and Cockney brains, and if the reasonings of phrenologists have any truth in them, the relative quantums of intellect. These facts in themselves are unimportant. Many will say it is of no consequence whether a man has a few ounces of brain more or less; but when we connect them with the doctrine laid down in such distinct terms by the first phrenologist of the day, they evidently conduct us to some curious conclusions. Looking, for instance at the varieties of fortune in the world, we are apt to regard life as a lottery, and to consider the wealth and the grandeur of one man, and the obscurity and poverty of another, as the result of positive laws, or of some cause little dependent on his personal qualities. But when we find the large heads at the top of society, the small ones at the bottom, and the middle ranks occupying the middle place in the cranial scale, we discover the operation of a principle in what seemed to be the mere effects of chance and destiny. We must, however, apprize the reader that the bulk of head, according to phrenologists, is not to be received as a token of intellectual talent only. It may arise from a great development of animal propensities, of avarice, of the combative disposition, &c.; but in one shape or another it denotes power, that is, power of intellect, of sentiment, or of passion. Men of small intellect sometimes build up princely fortunes, but these men possess force of character; they act under some feeling that directs all their powers into one channel, and that channel leads to wealth, perhaps through meanness or crime. Persons of great intellect, again, often squander their patrimony, because their mental energy seeks employment in pursuits which consume their property, or at least

direct their thoughts from the means of preserving it. The rapacious trader who amasses wealth may have as large a head as the philosopher who wastes his substance in schemes of ideal good; but the size will be developed in a different direction. The one acquires riches, the other perhaps loses money and gains renown, but both distinguish themselves from the mass; and both, we may take for granted, have larger heads than those easy men who remain contentedly at the bottom of the social scale. The principle, in short, if sound, supplies us with a key to the revolution of fortune in families. We see an individual rise in the world, and we call it chance or good luck; but it is merely a powerful brain mounting to its proper station. The descendants of this person intermarry with families of the same class, and thus a race of large brains is continued in the upper ranks, or they cross in a wrong direction, and after riding in their carriages, perhaps change places with those who drove them. Were society founded on just principles, the aristocracy of the brain would predominate over every other; but many causes keep those down who are down, and a hundred devices have been contrived by rich men to prevent their heirs with small heads from sinking to the level for which nature designed them. Hence, we have many small brains in the upper ranks, and many large ones in the lower, though on the great scale there is apparently a correspondence between the size of the head, and the individual station of life. This principle may be applied in the treatment of disease; and when we meet with a person where the brain is fully developed, or who has a large head, it is well to be made acquainted with the peculiar dispositions of the patient. To communicate to some persons that their disease would certainly prove fatal, would almost act as the immediate thunderbolt of destruction; while another would not only receive the intelligence with calmness and resignation, but thank the individual who was so kind as give the information. The power of certain passions in many persons with great heads should likewise be carefully studied, as a knowledge of the tempers and dispositions is almost of as much importance to aid the medical attendant in the treatment, as the most extensive acquaintance with medical agents.

HEADACHE. This is one of the most common as well as troublesome affections, and perhaps as difficult to treat with success, as any other disease. One of the latest writers on this affection, Dr Weatherhead, has divided the disease into, 1. The dyspeptic or sick headache; 2. Nervous headache; 3. Headache from fullness of blood; 4. Rheumatic headache; 5. Arthritic or gouty headache; 6. Of headache from organic lesion.

The first of these, *Dyspeptic or sick headache*, is a complaint of frequent occurrence among the sedentary, and those deprived of a suitable quantum of out-door and healthful exercise. It frequently proceeds too, from having indulged too freely in rich and stimulating foods and drinks in early life. There is nausea, and coldness or chillness felt over the system, with a sensation something like a stream of cold water running down the course of the spine, and this sensation most frequently occurs about half an hour or an hour after meals; the patient feels as if he could creep into the fire, the head aches, and a disagreeable taste is felt in the mouth, the pulse is languid, and a degree of dizziness and confusion of vision is present, as if the objects in the room were in motion. There is sometimes a craving for warm liquor, toddy or punch, if the patient has been accustomed to it, or if of more temperate habits, coffee or tea. Sometimes before, but almost always immediately after the warm liquid is swallowed, an irregular perspiration bursts out, most profuse on the forehead, and the patient feels extreme lassitude, but the headache is somewhat relieved. The bowels, in all these cases, are far from being regular, although they are frequently neither costive nor in a lax state, and often nothing present approaching to diarrhea; but if the stools are carefully examined, they will be at one motion of various colours and consistence. The mental faculties are often greatly depressed, and the sufferer is inclined to look at every question affecting himself, or his friends and family, in the most desponding point of view. When a patient with this description of headache, applies to a friend or medical practitioner for advice, inquiries must be carefully made, not only into the present, but former habits of the patient, and if a female, into the state of the menstrual discharge, and especially whether she be afflicted with fluor albus. If the stomach has been injured by former acts of intemperance, and has either in whole, or in part, relinquished these, it may be that the diet now employed is not of a suitable kind, cold or watery, and that too long an interval is observed between meals. In nine cases out of ten, it will be found that exercise out of doors has been almost entirely neglected. In this case, suitable diet and exercise must be prescribed, and the bowels kept in regular order, rather by enemas than by medicines taken into the stomach. Solid and nutritious food should be taken at short intervals. The breakfast may consist of a cup of tea or coffee, with a new laid egg whisked and used as cream, of fine biscuit, consisting only of flour, water, and salt; or dry toast, and every article of food should be well masticated. The dinner may be taken early, and consist of from four to six ounces of good beefsteak without fat, done on a gridiron, with biscuit or dry toast, and pure water, and one glass of wine.

Mutton chop, fowl, and fish, will furnish a variety on alternate days; white-fish, such as whiting, young haddocks, weighing about half a pound, and trout in season, or fowl. If there is no tendency to acidity or fermentation in the stomach, and if the patient prefers it, half a pint, but not more, of good ripe ale or porter, may be used at dinner as a substitute for the wine and water. With respect to medical treatment, as much of the compound powder of columba as may be lifted on a shilling, may be given in a small wine glassful of cold water an hour before meals. Tea or coffee may be taken in the afternoon, and if an appetite is felt for supper, it may consist of half a pint of sago, carrigan moss, or arrow root jelly, with one glass of wine, or a little aromatic powder and refined sugar. An enema, if necessary, should be administered occasionally, consisting of one spoonful of common salt, one ounce of butter, or sweet oil, and half a pint of warm water. If the patient is a female, and labours under any disease peculiar to the sex, in addition to these rules for diet, the medicines directed in such cases are likewise to be employed. If the subject of sick or dyspeptic headache indulges too freely in the luxuries of the festive board, these must be immediately relinquished. The stomach and bowels should be well cleared, the former, by an emetic of a scruple of ipecachuana, and drinking freely of camomile tea, and the following morning after the emetic, the annexed draught:

Take of Epsom salts, two drams.
—— Infusion of senna, one ounce.
—— Infusion of gentian, half an ounce.
—— Tincture of senna, two drams.
Mix these ingredients, and when the salts are dissolved, the draught is fit for use.

These medicines will clear the alimentary canal, and prepare the patient for the use of the following pills:—

Socotorine aloes.
Powder of rhubarb.
Extract of camomile flowers, of each two scruples.
Oil of orange peel, ten drops.
Beat into a uniform mass, and divide into thirty-six equal pills.

If the extract of camomile is rather dry, a few drops of simple syrup or mucilage, will be required to bring the mass to a proper consistence. Two of these pills are to be taken three times a day, an hour before meals. The enema ordered above may be used if necessary, every second morning, but in most cases the use of these pills will restore the healthy action of the stomach and bowels, provided the patient relinquish former habits, rich indigestible dishes, spirituous liquors, and other stimulants, and take regular exercise. The regimen ordered above must then be strictly adhered to, and in the great majority of cases we will promise a speedy departure of the sick headache. Before, however, we finally conclude this compact, we must include in the engagement the strict observance of moral and intellectual discipline, and, perhaps, we cannot more satisfactorily explain what we mean by this, than by quoting the sententious and acute observations of Lord Bacon on this subject. 'Admiration and light contemplation are very powerful to the prolonging of life, for they hold the spirits in such things as delight them, and suffer them not to tumultuate or to carry themselves unquietly and waywardly. And, therefore, all the contemplators of natural things, who had so many and so eminent objects to admire, as Democritus, Plato, Parmenides, Appolonius, were long lived; also rhetoricians, which tasted but lightly of things, and studied rather exoneration of speech, than profundity of matter, were long lived, as Gorgias, Protagoras, Isocrates, Seneca; and certainly those who are for the most part talkative men, do often grow old, for it shows a light contemplation, and such as does not strain the spirits or vex them. But subtile, and acute, and eager inquisition, shortens life, for it tireth the spirit and wasteth it.'

Nervous headache. Those most liable to this headache are the studious and sedentary; in fine, those who in general act upon the very opposite of the advice given by Lord Bacon in the preceding quotation. Young barristers, or advocates, and clergymen, who are in the habit of preaching without notes or MSS., are peculiarly liable to this species of the affection, and indeed, the great majority of literary characters who omit taking a due proportion of exercise. Single maiden ladies, even those of them who have it in their power to enjoy all the comforts of life, frequently suffer severely from nervous headache. Too many of them pore over the contents of the circulating library, till their head not only aches, but the paper and typography of the book before them assumes all the prismatic colours of the rainbow, and they are for some time lost in an indescribable reverie of pain and stupidity. In this case, when they can muster courage and strength to ring the bell, a cup of very strong tea is ordered, and, perchance, before it is got ready, a dose of ether or tincture of valerian, and this kind of life is followed from day to day, until the tone and energy of the digestive organs are almost gone, the headache at the same time becomes more violent and more frequent in its attacks, then a fashionable physician is consulted, who after exhausting his stock of antispasmodic and antibilious draughts, powders, and pills, despatches the lady and her nervous headache to Cheltenham, Leamington, or it may be some fashionable continental watering-place, to recover her youthful energies and leave her headache behind. This is the short history of ninety-nine out of every hundred of females, who are afflicted with this truly distressing complaint. The disease, in most cases, is only a symptom or indication of a deranged state of the alimentary canal, especially of the digestive, or what is

called in the phraseology of the Abernethyian school, the chylopoietic viscera, induced by protracted study, irregularity of meals, and in some cases indulgence in stimulating and indigestible food. The tongue is a sure index of the existence of debility in the digestive apparatus; the middle is covered with a whitish fur, and the margins of a pale red; the pulse is below the usual standard, both in strength and frequency, and although the patient may be either reading or writing in a warm room, his fingers and hands are often as cold as an ungloved hand in the open air, in November or December. To those who are placed in such circumstances as afford the means, exercise on horseback for a few miles daily, especially before dinner, is perhaps one of the most effective remedies, and those who cannot afford this should take a brisk walk. Long fasting or abstinence between meals should be avoided, and the patient should carry a little hard water biscuit in the pocket, as a craving of hunger frequently comes on; when if the means of appeasing it be not at hand, the sensation goes off, and the stomach becomes languid and inactive, whereas, were a small biscuit and a little water taken when the appetite craved food, the organ would retain its energy till the next meal.

We would, as to diet and drink, recommend the same kind of regimen as for sick headache, and likewise the same moral and mental discipline. We are not opposed to a variety of dishes at one meal to a healthy individual, provided those dishes be composed of proper food, and not deteriorated by cookery; but we have a serious objection to a variety of dishes, however wholesome, being presented on the table of a person suffering from nervous or sick headache. The clergyman, the barrister, the calculating accountant, engineer, or other studious and sedentary or literary individual, is called direct from the study, the office, the counting-room, or workshop, to dinner. He has been labouring hard from breakfast to the hour of four, five, or even later; his dwelling-house and place are perhaps under the same roof, and so much the worse; or he may have to take a five minutes walk. He has, indeed, left his stool, or chair, and the chamber which he occupied, but he has carried his reflecting mood to the dinner table. He partakes of one dish, fish, flesh, or fowl, and another is presented. Pastry, cheese, and perhaps fruit follow, and withal the individual may flatter himself he has ate but a moderate meal. There might be nothing essentially bad in either of these dishes, nor in the quantity consumed, provided the digestive functions were in a healthful condition. But mark the consequences to a weak stomach; no sooner does digestion commence on the varied contents of the stomach, beef, it may be fish, pie, pudding, and fruit, and probably strong ale or porter, and wine or punch, than the task is found to be too much for the enfeebled organs to perform; the head sympathizes, aches violently, and seems as if taking speedy and summary punishment on the guilty offender, who, unable to resume his studies, retires to his bed or his sofa, in the hope that sleep will shorten the attack of nervous headache, which is indeed after a short repose of two hours mitigated, but not removed by a cup of strong tea.

Had the same individual confined himself to one solitary dish, as in the regimen we have prescribed, he might have escaped the headache and oppression at stomach, the foul white-furred tongue with its red margins, and the consequent debility and lassitude he would feel on the following day. By pursuing such a course, both as to medicine and diet, as in the former case, with exercise on horseback, walking, gardening, or other active out-door employment, the nervous headache will seldom annoy, unless induced by some mental or moral cause. After the stomach and bowels are put in a regular state by the compound powder of columba, or the pills of camomile, rhubarb, and aloes, the system may be farther strengthened by dissolving one dram of sulphate of quinine in one ounce of aromatic sulphuric acid, (spirituous elixir of vitriol), and taking twenty or twenty-five drops three times a-day, in a large wine glassful of cold water. Antispasmodics sometimes relieve headache during the fit, such as asafœtida, musk, valerian, castor, ether, ammonia, &c.; and mercurials, bismuth, zinc, and even arsenic. A long and extensive experience in cases of this kind, and of what is called periodical headache, has convinced us that more may be done by diet and regimen, especially by a due proportion of out-door exercise, especially on horseback, or in horticulture, and the cultivation of an easy unruffled temper, than by any other means. The following taken at one dose in the form of a draught, twice a-day, or at any time the headache is most severe, will sometimes afford very considerable relief, especially in the nervous headache of females, although it is not exclusively designed for that sex:

Ammoniated tincture of valerian.
Compound tincture of castor, each thirty drops.
Sulphuric ether, twenty drops.
Pennyroyal, or peppermint water, two ounces, (half a gill).
Mix and form a draught.

Or,

The fœtid spirit of ammonia.
Ammoniated tincture of valerian, each forty drops.
Pennyroyal, or peppermint water, two ounces.
Mix and make a draught.

The infusion of either the pennyroyal or peppermint will answer equally well as the distilled water of these herbs. The application of ether or spirit of camphor, as an evaporating lotion to the head, or equal parts of vinegar, spirits, and water, is sometimes employed. From thirty to sixty drops of the tincture of musk, and thirty

drops of ether in a small glass of cold water, also sometimes affords temporary relief.

When the stools have not a natural colour and appearance, a five grain mercurial pill may be taken every second or third night at bed-time, and a seidlitz powder the following morning, while the columba powder, or camomile pills, are continued at the same time.

Headache from fullness of blood. This is a species of headache which often relieves itself by a discharge of blood from the nose, and in such cases the bleeding should not be prematurely checked. Bleeding with leeches applied to the temples and behind the ears, or to the back of the neck, and the application of cupping glasses over the leech holes may be employed where spontaneous bleeding does not take place. General blood letting may likewise be employed, and the antiphlogistic regimen strictly observed. As this species of headache is in many cases to be regarded as one of the early symptoms of *apoplexy* or *epilepsy*, we refer our readers to these articles for more specific information.

The next two species of headache, viz., the *rheumatic* and *gouty*, are pretty fully considered as attendants on these diseases, under their respective heads.

Headache that proceeds from *organic lesions*, which is the sixth and last species of the arrangement we have adopted, is one indeed in which very little can be done, even by the most experienced practitioner, much less by the domestic. These are generally preceded by a fullness of blood, a continued and dull heavy pain, and the organs both of vision and hearing are more or less affected. A reference to the account of *Hydrocepalus*, &c., will furnish all information required in a work of this kind, with respect to many of those concealed and organic diseases of the brain, that have hitherto baffled the skill of the medical profession. In conclusion, an attention to diet, exercise, and clothing, and the use of the cold or shower baths, except where there is a fullness of blood in the head, in the absence of the fits, with the use of mild laxatives, aperients, and tonics, and in some cases, the occasional use of antispasmodics, are all the means domestic medicine can supply for the relief of headache. Blisters in severe cases, (and it is only in these cases they can do any good), are sometimes employed, and the occasional application of a sinapism to the stomach, likewise affords relief in sick headache; while a regulation of temperature, so as to secure a uniform discharge from that great sympathizing envelope of the human body, viz., the skin, will tend to mitigate, if not remove, sick and nervous headache.

HEART. The human heart is one of the most wonderful natural hydraulic machines or apparatus, with which mankind are acquainted, and great as have been the discoveries made in the knowledge of its structure and functions, and those modes and powers, by which it so admirably executes the purposes for which it was placed by the all-wise Creator within the breast of man, much yet remains to be known, and the question may yet be put to the most accomplished anatomist and physiologist, in the language of the inspired prophet, "Who can know it?"

The heart is situated in the cavity of the pericardium, and is a hollow muscular viscus, by whose contractile powers the blood is sent to every part of the body. It is distinguished in the dead body whilst in the pericardium, (or bag in which it is enclosed), into an anterior and posterior surface and margins, a base from which the large arteries emerge, and an apex. In the living body the base of the heart is towards the dorsal vertebræ, its apex towards the sixth rib of the left side, so that its situation is oblique, not transverse, the right ventricle being anterior to the left and the inferior surface lying upon the diaphragm. The heart is distinguished into two auricles, which lie upon its base, surrounding the larger arteries, two ventricles or cavities in the internal part, and the arteries and veins going from and terminating in it. The heart of the fœtus differs from that of the adult in having a *foramen ovale*, through which the blood passes from the right auricle to the left. (See *Circulation*.) The foramen ovale, or opening between the auricles of the fœtus, which permits the blood to pass from the right auricle into the left, in consequence of its not having a passage through the lungs before birth, is sometimes forced open in the adult. This happens generally to those who have asthma or pulmonary consumption, or some disease of the lungs affecting respiration, so as to prevent the free circulation of the blood through the lungs, from the right ventricle to the left auricle. The blood, therefore, accumulating in the right auricle distends it more than commonly, and the pressure causes an absorption of the tender membrane which closed the foramen ovale. In this manner the foramen ovale closes in adults, but it not unfrequently remains open from birth, hence the blood continues to be circulated when the respiration or breathing is suspended, as in diving, holding the breath, &c.; and hence the circulation of the blood is regular, notwithstanding the respiration is obstructed as in asthma, or the substance of the lungs condensed, or almost wholly ulcerated, as in the last stage of pulmonary consumption.

The heart, as the primary organ of the blood's motion, is liable to various diseases, most of which are not only beyond the reach of domestic medicine, but mock and bid defiance to the most skilful practitioner. This organ, too, like other parts of the body, is liable to malformations, and is sometimes unusually large or small; it is liable to inflammation of its external membrane and of

its substance, followed by all the terminations which occur in other parts of the body, such as suppuration and gangrene, and even its substance is sometimes converted into a cartilaginous state, and not only the heart, but its arteries, become ossified, or in other words, are converted into a bony substance. Any of these diseases that can be known or mitigated will be found described under their respective heads; in this place suffice it to state, that almost every disease of the heart causes an irregularity in its action. An intermittent pulse, too, mostly accompanies diseases of this viscus, but as the heart often beats irregularly, in consequence of the blood not being duly returned to it, as in asthma and hydrothorax, and as it often contracts irregularly from sympathy with other and remote organs, in a state of functional or organic disease, an intermitting pulse cannot always be considered as a pathognomonic or peculiar symptom of a disease of this organ. Happily the diseases of the heart are even now better understood by the faculty than formerly, and the invention of the stethoscope has enabled medical practitioners to form a more correct diagnosis of their nature and extent, before a post mortem, or after death examination, tells the true state of the case. Hopes may be entertained, that the further investigation of these affections may terminate in the suggestion of means of treatment of every day and practical benefit; but as the profession are as yet but imperfectly acquainted with them, it is clear that they must be considered as beyond the reach of the domestic practitioner.

HEARTBURN. A hot burning sensation at the pit of the stomach, attended with belching and discharge of sour fluid into the mouth. It is caused by acidity at stomach, and is a frequent symptom in dyspeptic cases and also during pregnancy.

The treatment consists in giving small doses of alkaline medicines, as the carbonate of soda, or potass, dissolved in a little peppermint water, and attention to the state of the bowels; by giving the oxide of bismuth, in doses of eight grains, combined with columba powder, twice or thrice a-day. In some obstinate cases depending on the vitiated state of the gastric juice, the elixir of vitriol in small doses, combined with the decoction of Peruvian bark, has been found useful.

HEAT. Temperature in all its different degrees is a most important subject of inquiry, nay, not only of inquiry, but of great practical importance. This will in some measure be seen, by an attentive consideration of our article *Cold*. In that article, we have shown the very pernicious effects of a low temperature on animal life, and in this, we shall address ourselves to the consideration of its opposite, heat.

The effects of heat on the human body, and its influence as a physiological and physical agent, is doubtless a subject of great importance to man in every grade of civilized society, and more especially in these times of commercial enterprise and adventure, when it is considered a matter of far less importance to undertake a voyage from Britain to India, or Australia, than it once was to cross the channel and visit either Amsterdam or Paris. Many indeed of our artists and mechanics are for the greater part of the day living in the temperature of a tropical climate, and are subjected to the extremes of cold and heat more than once or twice in the course of twelve or sixteen hours. There are many questions of deep interest involved in the consideration of heat, as it affects the human frame in the production of disease, or its employment as a preventive or remedial agent. Much that is practically useful is already known on the effects of heat, and the means of preventing and removing its baleful effects. In the present case, however, we shall confine our attention to the consideration of heat in reference to climate, leaving caloric, or the matter of heat, whether as a distinct substance, or whether like gravitation, only a property or matter, for the investigation of the chemical philosopher. Indeed, we consign to the same learned individual, the duty of accounting for the cause or causes of subterranean heat, whether these are volcanic in their origin, and partial in locality and operation, or are central, universal, and differing in intensity and action, from causes too deep, within the recesses of the earth, for human ken and sagacity to discover and unfold. It has been established from the very best authorities, that the mean temperature of the surface of the earth, and which embraces the middle latitude, is 60°, in Britain from 51° to 52°, and we may fairly assert that these climates which enjoy exemption from the extremes of heat and cold, afford the most numerous and striking examples of superiority in the human race, both as regards the elevation and refinement of the mental faculties and the physical structure of man.

The late Dr Black observed, 'that were the heat which at present cherishes and enlivens the globe, allowed to increase beyond the bounds at present prescribed to it, besides the destruction of all animal and vegetable life which would be the immediate and inevitable consequence, the water would lose its present form and assume that of an elastic vapour like air, the solid parts of the globe would be melted and confounded together, or mixed with the air and water in smoke and vapour, and nature would return to the original chaos.'

That man, the highest inhabitant of our globe, should enjoy so many consequent blessings, from the distribution, regulation, and wisely divided, however differently apportioned solar powers, is only one of the many astonishing arrangements of those numerous physical agents, ever ready at

the command of our omnipotent but merciful Creator, to perform his high behests. Such is, however, the feeling inspired by the knowledge, however partial, of this great unknown agent, that the unchristianized but reflecting heathen philosophers attribute its astonishing power to the great luminary of day, rather than to its greater Creator, who said, Let there be light and heat, and it was so. Whatever may appear to us faulty in this wonderful distribution of heat and cold, (for these are only relative terms), the facts even already collected are sufficient, notwithstanding the extremes of the seasons, and the meteorological diversities from which man sustains or appears to sustain so very great occasional injuries, the very slightest deviation in the executive physical government of our globe, would soon convince the wisest sons of science and philosophy, that any boasted improvement or suggestion of theirs was only calculated to disturb the harmony of the spheres, and introduce discord and confusion into the administration of nature.

Happily for us, who are natives of a temperate climate, we know but little of the deleterious influence of extreme solar heat upon the human frame; but even in Britain and Ireland, who has not experienced, in a hot summer, the total languor and enervation which a great continuation of high summer heat produces? These calorific rays of the sun in a hot British summer, not to speak of more southern latitudes, exercise a peculiar influence upon the functions of the liver, and excite that organ to an increased secretion of bile; so that even in these kingdoms the system becomes strongly predisposed to be acted upon by those remote causes of disease which abound in autumn, the most conspicuous of which are the miasmata, generated in marshy districts, such as the fens of Lincoln, &c., and in all situations of stagnant water, especially if with muddy bottom. Gastric and intestinal disorder, with bilious fever, often inflammatory, cholera morbus, and remittent fever, are amongst the morbid productions of the continuance of extreme summer heat, not, however, as the simple consequence of great elevation of temperature, but of a certain constitution of the atmosphere produced by the influence of great solar heat, and certain terrestrial conditions, operating on human constitutions especially predisposed to disease. It should, however, be borne in mind, that moderately high temperatures are not injurious to health, if a circulation of air be kept up, as it is foul air, not warm air, that is most hurtful to the human constitution. Of this we have a striking example, in the case of those employed in certain factories, spinning mills, &c. A heat of 75° is required in the apartments where the finest description of cotton yarn is spun, and the stovers in bleach-works and print-works hang their cloth in temperatures much above 100°, and do not appear to suffer inconvenience from it, though they frequently leave the hot room for the open air. Messrs Benyon and Neild state, in one of the Factory Reports, that they had made inquiry about some boys, who had been employed in the drying room of a calico print-work, heated to 112°, for four years, and they found that they had never had occasion to leave their work from indisposition. Dr Ure, in alluding to the stove girls, (being, however, adults), employed in the calico printing establishment of Henry Monteith & Co., at Barrowfield, Glasgow, says, 'I have been in the stove, and seen them at work around me, whilst the thermometer in my hand marked 140°. I was informed, (continues Dr Ure), by the over-looker that it often stands higher. As the wet cloth is drying, the temperature sinks a few degrees. These girls are constantly passing through the open air, from one stove to another.

We must turn, however, for all the most injurious and striking examples of the influence of solar heat on man and animals, and even on vegetables, to those tropical countries where it exerts its most powerful effects. Here, too, we shall find the wonderful difference that exists in the capability of different individuals to endure high tropical temperatures, a difference in capability which is not confined to the natives of these regions, but even extends to Europeans or natives of the temperate zone, some of whom never encounter even the probationary seasoning of the febrile and other diseases, to which even the natives are occasionally liable. It is not indeed difficult to understand the perfect facility with which the native Negro or Indian exposes himself with his head naked to most intense solar heat through the day, but it is not easy to account for the perfect inconvenience which many Europeans, and not a few of them from the North Highlands and Islands of Scotland, experience under direct and continued exposure to the calorific rays of the sun in a hot climate; yet such are the indisputable facts of the case. The Indian, together with the force of habit, from his birth, is aided by the remarkable thickness of his scalp, and the African or Negro, by his peculiar and thick set woolly hair, while nature has framed the organs of respiration fitted for a heated atmosphere, and interposed a highly oleaginous pigmentum nigrum, to prevent the universal envelope from becoming either degenerated or shrivelled by its constant exposure to the burning rays of a vertical sun. To this wise and merciful provision are we to attribute the fact, that excessive heat alone is not unfavourable to health and longevity; and Humboldt well observes, that the burning province of Cumana, the coast of Cora, and the plains of Carracas, attest the truth of the position. In Georgia it sometimes rises to 102°, fre-

quently to 100°, and for many days successively to 98°, and does not in the night sink below 89°. Governor Ellis, in stating those facts, (1758), remarks, 'I think it highly probable, that the inhabitants of this town breathe a hotter air than any other people on the face of the earth;' and again, 'I must acquaint you, however, that the heats we are subject to here are more intense than in any other part of the province, the town of Savannah being situated on a sandy eminence, and sheltered all around with high woods. But is it not somewhat strange that the people actually like so hot an air as I describe, and no less remarkable that this very spot, from its height and dryness, is reckoned equally healthy with any other in the province.' Emigrants to warm climates should bear these facts in mind, 'for experience,' says Dr Lind, 'fully confirms this truth, that in elevated and temperate situations, where the soil is dry, gravelly, and clear from wood, shrubs, and stagnating water, Europeans enjoy good health in the hottest climates in all seasons of the year. This asylum for health is to be met with in almost every quarter of the globe. In Sumatra, Fort Marlborough affords a retreat tolerably safe. The unhealthy town of Calcutta has in its neighbourhood the healthy situations of Barasatte and Garatte.' As it is by such facts that Europeans proceeding to warm climates are to be guided, we may further state, that Dr Chisholm, in his remarks on the climate within the tropics, observes, 'that if the endemic causes of disease could be avoided, the pure solar heat alone would not be found a cause of injury, except in the accidental production of that species of phrenitis, known within the tropics by the name of *coup de soleil*, but, (continues Dr C.), the conditions necessary to the production of this disease are different from those in which solar heat is usually applied to the human body. The subject must be exposed to the hottest rays of the sun, during the hottest time of the day, when the thermometer is generally 130°; he must be stationary, his head must in general be uncovered, and the atmosphere must be still.' The preceding facts, and many others that might have been adduced, irresistibly establish the capability of the human constitution to endure continued solar heat without injury, in situations favourable as to soil, and free from stagnant water or sources of foul exhalation; provided also, that great temperance in living, or in other words, those essential hygeianic rules are observed, which will be found so liberally diffused throughout our columns, especially those under the articles, *Diet*, *Clothing*, *Air*, *Cold*, &c.

The daily increasing intercourse with Egypt and Asiatic Turkey, and the shores of the Red sea, and the encouragement given by the present governor of Egypt to British artists and mechanics, has induced us to copy the following note from Mr Moseing, who was employed in 1830, on a survey of the coasts of the Red sea, addressed to Sir E. Scudamore, M. D. 'During (says Mr M.) the latter part of June, and beginning of July, 1830, we were exposed for some weeks to an average temperature of 93° in the shade; yet, during the whole of this period we had not a single man on the sick list out of a crew of 130. The surrounding country was a desert, without a particle of vegetation for miles, and the shore sandy and rocky, without sea wind. I have found also that in Upper Egypt, with the thermometer 105° in the shade, I possessed as much bodily and mental energy as in England, while in the moist climate of India, with the thermometer at 70°, I have been fainting on a sofa. Our vessels of war on the African station, it is well known, are only sickly when near shore. At sea the crew are exposed to the same degree of heat.' Let it not, however, be supposed that all Europeans, even when most favourably situated and exempt from all or most of those hurtful contingencies connected with a residence or first settlement in a warm climate, escape without a greater or less degree of temporary or even permanent ill health, in the form of fever, dysentery, cholera, or bilious and hepatic affections; for as Sir C. Scudamore justly observes, 'the European constitution is always put to a severe trial on being transferred to a hot climate;' and our lamented townsman, Dr Stewart Henderson, in his excellent work on the Fever of the West Indies, clearly demonstrates that it is not always those who have lived most temperately at home, or been less frequently subjected to medical treatment, that most readily escape; but that the votaries of Bacchus, Venus, and Mercury, or in other words, the most worthless, the worn-out rakes, the bullies of brothels, and the sweepings of lock hospitals, many of which found an asylum in our royal navy during the war, very frequently escaped the ravages of the West India fever; while the sober and hardy sailor, who had never before known disease but only by name, fell a victim to the pestilential malaria of the country, and inhaled the epidemic poison in every gale from the shore. It is not, however, from this to be inferred that intemperate habits of any description are to be regarded as preventive measures by the European on his first arrival in a tropical climate; for the dissipated and mercurialized characters to which we have alluded, had been for some time subjected to the wholesome and temperate diet and discipline of a ship of war; and perhaps owed their exemption to the peculiar state to which they had been reduced by the mercurial means employed to renovate and restore their half worn-out constitutions. We shall, however, revert to this subject in our article on *Tropical* and *Intertropical Climates*.

In his remarks on the influence of a tropical

climate on the natives of Britain, Mr Marshall, after pointing out the immense value of temperate habits, admits that the strictest temperance and the greatest precautions in regard to health, are often totally inadequate to guard against the diseases of equinoctial regions. When a body of troops is transferred from Great Britain to a tropical climate, (India for example) the men undergo a diminution of muscular power, the sick list increases from four or five to ten or twelve per cent. per annum. British soldiers will surmount considerable fatigue for a short time in equatorial regions, but not by any means with a similar impunity from disease as in this country. Excessive exertions in warm climates never fail to add greatly to the sick list. The ratio of mortality of the children of British residents in intertropical climates is usually considered high, and they require to be removed at an early age to a temperate climate. It is often seen that they become blighted and stunted in their growth, without the appearance of the pathognomic symptoms of any specific malady.

By way of illustration, we may here state a few facts with respect to the difficulty or facility which different animals have in accommodating themselves to varieties of temperature. It would appear that some animals, particularly those which inhabit the colder latitudes, enjoy a very limited range. Among these may be mentioned the rein-deer, the Esquimaux dog, and the arctic or great white bear. Almost all the Esquimaux dogs brought into Britain have perished. Arctic bears, when imported, suffer very much from the elevation of temperature, and it is necessary to maintain a certain degree of artificial cold in the places where they are kept. Every attempt hitherto made to introduce that beautiful and useful animal the rein-deer, into Scotland or England, has invariably failed, though in some quarters of the latter the moss which constitutes the principal part of its food, grows in great abundance. Dr Graves of Dublin dissected two rein-deers that died in that city, and found that in both inflammation and enlargement of the liver was the cause of death. An additional illustration of the influence heat exercises on the size of the liver, is afforded by the celebrated Strasburg geese. By feeding these birds in a particular way, and keeping them in an artificial heat, the liver becomes diseased, grows to an enormous size, and in this state forms a *paté*, much sought after by the scientific gourmand. It will be seen not only from this, but from several of our other articles, especially *Hepatitis*, that Europeans in India suffer from liver disease, while on the other hand, negroes and natives of warm climates frequently die of consumption in Britain. Farther, by way of illustration, we may remark that plants and animals exhibit very striking analogies as to the manner in which they conduct themselves with respect to change of climate. Animals, however, are in general better adapted to bear vicissitudes of temperature and change of climate than plants. In the whole vegetable kingdom there will be found few, scarcely any instances, of any individual plant being so extensively diffused as some animals are. Man is found in every part of the habitable globe, crows also extend over the earth, and some of the mammalia, as the sheep, dog, &c., have a very extensive range. Among the individuals composing the vegetable kingdom, we do not meet, however, with examples of this general diffusion, and we find that many are limited to inconsiderable districts or peculiar localities. Generally speaking, it is much easier to introduce a plant or animal from a hot into a cold, than from a cold into a hot country, because our means of producing heat far exceed those we possess for generating cold. Thus we are enabled by artificial heat to keep tropical birds, lions, and tigers in this country, and by means of stoves and glass houses to preserve plants from the hottest countries; but we find it extremely difficult to rear the plants or animals of high northern latitudes, as already exemplified in the cases of the Esquimaux dogs and Lapland rein-deer. Domestic animals imported into India from Europe are predisposed to disease, dogs particularly; they soon droop and become excessively thin; many die before they are six months in India, and only a small ratio survive a few years. They rarely propagate their species. Imported cows and sheep do not thrive. Horses from high latitudes are neither so efficient nor so healthy as in their own country. Animals which are common to a temperate and tropical climate are, perhaps, generally smaller in equatorial regions than in high latitudes; such for example are the sheep, the fox, the hare, and some varieties of the deer tribe. Man enjoys superior powers of maintaining his standard heat in all extremes of high and low temperature, which admirably qualifies him for exploring all the regions of our globe. Inferior animals degenerate or die by a removal to a very opposite climate, though apparently well fitted to their destined localities; as the lizard and the chameleon which remain cool under the equator, while the whale and the porpoise retain a degree of heat above that of the human body, though surrounded by the waters of the coldest northern seas, and amidst mountains of ice in the neighbourhood of the pole.

Many experiments have proved the capability of the human body to resist with impunity the influence of very high artificial temperature, in addition to those every day examples to which we have already alluded of certain trades who are subjected to very high degrees of heat.

Among the most noted of these experimenters are Sir Joseph Banks, Drs Fordyce, Blagden, and Mr J. Taunton. Our limits do not permit us to adduce the particular results of the numerous experiments that have been made, neither are some of the documents now within our reach. Suffice it, however, to state that Dr Blagden went into a room so heated that in the hottest part the thermometer rose to 268°. In addition to his common clothes he had a pair of thick worsted stockings drawn over his shoes, he also wore gloves. He remained eight minutes in this apartment. He says, 'the air felt very hot, but still by no means to such a degree as to give pain; and he and the other gentleman thought they could have borne a much greater heat. Dr Blagden observes, 'for seven minutes my breathing continued pretty good, but after I began to feel an oppression in my lungs attended with a sense of anxiety, which gradually increasing for the space of a minute, I thought it most prudent to put an end to the experiment.' His pulse on returning to the cool air was 144. He conjectured that were a heat of this kind ever pushed so far as to prove fatal, it would be found to have killed from an accumulation of blood in the lungs, or by some other immediate effect of an accelerated circulation. In all these experiments, however, the individuals subjected to such extreme heat were not inconvenienced by the transition from the heated apartments into the cold air. These results correspond with the fact with which the profession are already familiar; viz. that when we are thoroughly warmed we can leave a hot apartment and go immediately into a very cold atmosphere without injury, provided that we are not at the time in a state of nervous exhaustion from any cause, or perspiring freely from the general surface; but if the body be much fatigued from long dancing, and especially from a very relaxed skin, the risk of injury is great. The case of the printfield and bleachfield stove girls, already described, affords an excellent illustration. Indeed, these and similar facts and experiments serve to show that the animal powers can resist heat as they can resist cold; or in other words, that the standard degree of the animal heat can be maintained with wonderfully slight deviation both in the highest and lowest temperatures. Dr J. Davy, however, has proved that the human animal heat is raised by a warm climate, and that the temperature of the inhabitants of Ceylon is higher than ours by one or two degrees, and Dr Davy observed a similar difference in the same individuals before their departure and after arrival. Delaroche and Berger have observed the greatest elevations of human temperature in their own persons, much exceeding that obtained by other experimenters. Dr Green, at the request of Sir C. Scudamore, made ten examinations of patients receiving sulphureous gas baths with a correct animal heat thermometer, the bulb of which was placed under the tongue, and the following was the result. The average degree of animal heat was 97.5°; the elevation at the expiration of five minutes was 99°; at the end of fifteen minutes to 100°. Then free perspiration took place, and the animal heat again diminished. Such was the mean of the experiments. The lowest temperature of the bath was 135°, and the highest 165°.

The highly deleterious influence of hot winds in tropical climates both on animal and vegetable life is well known, and those who have been in the hottest parts of India compare the blast to the external air from a furnace; and yet without alluding to the hottest seasons or situations in India, it will almost invariably be found that those who have lived for years in that country complain of greater inconvenience from the oppressive heat of a crowded room at a London *soirée*, rout, or assembly, in warm weather, than from the atmosphere of Calcutta. This, however, the attentive reader of the preceding remarks will be at no loss to account for, seeing that the effect in the latter case is referable to the deteriorated air from the numbers assembled, and a want of sufficient ventilation. A whole caravan is sometimes overtaken by the *kamsin* of the great Arabian Desert, that sheds its pestiferous influence on man and beast to almost total destruction, while in Africa the harmattan has the effect of drying up the skin of the natives in a very extraordinary manner. The cuticle soon peels off in white scales from every exposed portion of the body, having an appearance as if it were covered over with white dust. The pestilential period of a high atmospherical temperature varies in different countries and seasons, according to their geographical positions. The winter puts an end to the plague in the Levant, at Constantinople, and the summer destroys it in Egypt. Sir G. Blane says, 'that the existence of plague cannot consist with a heat of the atmosphere above 80°, nor a little below 60°;' and adds, the pestilential yellow fever in like manner has its own range of atmospheric temperature, but on a higher scale than the plague, for it cannot subsist long if the temperature falls below 80°. We coincide, however, with Sir C. Scudamore in thinking it questionable whether Sir G. Blane may not have stated this condition of temperature too positively with regard to yellow fever, and it appears to us certainly so with respect to plague. In 1664, when the plague raged in London, the deaths were in December in the course of one week upwards of 12,000, and in the following year they were in June 590, in July 4129, in November 3449, and December under 1000.

Mr Wilkinson, for many years a British resi-

dent at Alexandria, says that the average temperature at the beginning of the plague in March and April was about 78° at mid-day, and from 92° to 97° when the plague ceased about the 20th of June. The disease is not known as an epidemic in Upper Egypt, where the heat is so much greater than in Lower Egypt, and the soil so remarkably dry, and rain there is a surprising phenomenon. Mr Urquhart, another British resident at Constantinople, says, 'I have seen the plague in the midst of snow, and with a temperature above 100°. The universal opinion at Constantinople is in its contagious character. They also believe that its ravages are arrested by a low or a high temperature, and it generally so happens; but when the plague begins late in the year it continues through the winter, as during last winter, when it commenced two months later than usual. I have observed it to run a course of six months or thereabouts in the same place. There are places where it never ceases, but there one half of the town will have a different exposure from the other, the plague alternating from the one portion to the other with the alternation of the winds, which generally blow six months from the south and six from the north. There are other localities where the plague never ceases.' The connection of a southerly constitution of the air with pestilence, has been long remarked by writers on medicine from the earliest records to the present time. The new and unwelcome visitor to Europe, the Asiatic cholera, did not show any particular preference to the months of the year, or appear to have its virulence modified by atmospherical temperature, but certainly it prevailed most in low and damp situations. It would, however, serve no good practical purpose to pursue its statistics in reference to temperature, as an eminent foreign physician justly observes 'that every atmospheric change was followed by an accumulation of cholera patients in the hospital; while if the weather remained stationary for some days, the disease ceased to make material progress. Great heat, a storm, or sudden cold from a state of heat, was immediately followed by an increase of admissions;' and these statements appear to us to embrace all the facts of the case. The influence of heat of climate on the physical and even on the moral and intellectual faculties of men, are indeed subjects of considerable importance. It would, however, occupy too much of our limited space to consider these at any length, were it even consistent with the design of this work. We shall therefore confine our attention to its influence on the physical constitution.

The early development of the organization distinguishing puberty in warm climates is well known, and is hinted at in several of our articles on the peculiarities of the sexes, and life itself, for the most part, runs its several stages in a shorter period of time between the tropics than in temperate climates. Proceeding southward, the period at which the menses or catamenia of females commence (see *Menses*), and cease, become earlier with every degree of latitude, until on arriving in India we find that in the plains the females become mothers at from ten to twelve years of age, and lose the catamenia at from twenty-five to thirty. In the south of Europe, in Italy and Spain, the same circumstances are observable in a modified degree, and even the effects of artificial temperature in combination with rich stimulating food, produces a like modified effect on young females among the higher classes in Britain, and temperature alone acts likewise on the girls employed in warm factories, so that many of them menstruate at an earlier age than others not so exposed to the influence of heat. In hot climates too, there are occasional instances of remarkable longevity among the natives. From the statistical reports of the American government it appears that in the southern states the number of persons above 100 years of age bear a proportion of twelve to one in favour of the blacks over the whites, and from those given of the West Indies, the instances of equal longevity amongst the coloured population are very numerous, and in a proportion over the white population equally remarkable. In Africa, however, longevity amongst the negroes is far inferior to that which so remarkably occurs in the West Indies. Now that slavery is at an end, we should rejoice to see voluntary importations of free negroes into our West India colonies as labourers, as by this means they might more readily be initiated into the habits of civilized society, and instructed in the principles and duties of Christianity, than in their native wilds.

It appears, then, from the preceding facts and circumstances, deduced from unquestionable authorities, that the health and longevity of the human race are in an infinite degree more connected with the various circumstances of food, clothing, occupation, habits of living, place of residence, free ventilation in dwellings, &c., than with climate merely, whether hot or cold. It is an ancient opinion that solar heat causes blackness of the skin, the different shades of colour, and even other varieties of the human race, and even some modern writers have resorted to climate as an almost sufficient explanation. Buffon says, 'the heat of climate is the chief cause of blackness among the human species,' and other writers have expressed the same opinion still more strongly; and there is no doubt that certain diversities, and especially the complexion of the skin, are produced by climate; yet a little inquiry will enable us to discover that we must look for deeper causes to

explain the great varieties of the human race than either climate or solar heat alone. 'Within the tropics, man (says Dr Copland,) is subjected to the continued operation of a high temperature, which excites the nervous functions and vascular action, notwithstanding the provision with which nature has furnished his integuments in order to moderate its effects; but it also elaborates a more unctuous secretion, which by its abundance and sensible properties evidently possesses a very considerable influence in counteracting the heating effect of the sun's rays upon the body, and in carrying off the superabundant caloric. Whilst the active functions, aided by the colour of the skin, thus tend to diminish the heat of the body, and to prevent its excessive increase by the temperature of the climate, those materials that require removal from the blood are eliminated by this surface, which in the negro especially performs excreting function, very evidently in aid of those of respiration and of biliary secretion. In the white variety of the species, on the other hand, the functions of the lungs and liver are much more active than in the darker races, changes to a greater extent being performed by respiration in the former than in the latter. The liver is also larger, and its secretions more copious, in the European than in the Negro or Mongol.

Without, however, attempting to trace the differences in the internal organization of the different races of men, we proceed to state the opinions of other celebrated writers on this interesting subject. Humboldt says, 'It cannot be doubted that the greater part of the natives of America belong to a race of men who, though many living on the mountains at an elevation of from five to eight thousand feet above the level of the sea, where the winter is as severe as in Europe, are fully as dark or darker than the Malays living near the equator, as just now stated, where the solar rays are so powerfully felt. The latter expose their bodies almost entirely to the influence of the sun, whereas the mountaineers constantly wear white woollen clothing, yet their bodies are of quite as dark a hue as their faces. In the various parts of Hindostan and the neighbouring countries, there is an extraordinary variety in the colour of the natives where the power of the solar rays must be the same. But the phenomenon in question is still more exemplified in Africa, a comparison being drawn between its inhabitants and those of Asia in the same latitudes. For example, if we look at the people of Africa, the natives of Darfour, Kordofan, Bourneau, and in north latitudes from 15° to 25°, they are generally, we believe, with the exception of the Egyptians and Arabians, quite black, with woolly hair; whilst the Persians, the natives of the Deccan in India, the Burmese, Siamese, and Chinese, are all either brown or copper coloured. The different customs of the natives of hot countries in different parts in regard to clothing, is worthy of further remark. According to Mr Moreing, the natives of the hot region of the Nubian coast, between the Straits of Babel-Mendab and the 25° of north latitude, and generally the western shores of the Red sea, are copper coloured, and without the negro features, exposing themselves to the hottest rays of the sun with uncovered heads; while on the opposite coast of Arabia where the thermometer seldom indicates so high a temperature, they most carefully cover themselves. Their complexion is a high copper colour. Mr Shaw the missionary relates that in South Africa he had observed a marked distinction of complexion amongst the various tribes; that the Kaffres, and the Buchwanas on the eastern side of the peninsula were black, with woolly hair, whilst the Wamaquas, Bushmen, and Hottentots were copper coloured, with black straight hair. It is therefore clear that we must look to something else than temperature of climate to account for the different varieties of colour among the human race. A great practical question remains yet to be solved, seeing that man is naturally omnivorous; and indeed, he must be so in consequence of his ubiquity, else he would be ill qualified for living in all regions of the globe. Still, however, we find that the human constitution suffers a greater or less degree of injury by a removal from one climate to another, whether it be from a cold or temperate to a warm or tropical, or the contrary. What then are the most likely, tried, and efficacious means of preventing or alleviating the baleful effects attendant on such a change, especially one from a cold or temperate to a warm climate? From all we know of the organization and the functions of the different organs of the human body, as developed in the natives of tropical and warm climates, we mean the darker races of all shades, from the bronze or copper coloured to that of the jet black, we find that our wise and bountiful Creator has adapted the system for the climates with redundancy of vegetable food admirably suited for the sustenance of the inhabitants. There are nutritious roots, juices, and piths of plants yielding in abundance starch and jelly, sweet canes, and vegetable bread baked in the solar rays, refreshing fruits, with grain and leguminous seeds in vast variety. In the warmer regions, however, those animals usually employed as aliment by the inhabitants of the colder and more temperate regions, are not only scarce but stunted in their growth. These facts then afford a hint to new settlers, or temporary residents in warm climates, to adhere as strictly as possible to the course of diet in use among the natives, avoiding animal food, or rather using it in very moderate proportions. Variety may

be indulged, as fruits are abundant throughout the year, and the products of the cocoa, the date palm, banana, and sago trees in commixture with the sugar cane; the juice of the lemon and orange is found in pleasant variety.

It may not be out of place here to allude to the experiments of the late Dr Henry of Manchester, on the disinfecting power of heat. Those who confine their attention to the washing of foul linen, and other articles of clothing, and there are many such establishments of this sort in the neighbourhood of every great town, universally employ heat as one of the most powerful assistants. Dr Henry has shown that by exposing infected clothing to a dry heat of 200°, all infection is completely destroyed, and that this may be accomplished without destroying the articles experimented on. He also proved that cowpock can be volatilized without being destroyed at a temperature of 140°. This discovery will be regarded as truly valuable by all those who have often from the fear of the remains of contagion, in cases of typhus fever, measles, cholera, small pox, &c.; consigned to the flames many valuable articles of bed and body clothing. Although contagion in many cases may be regarded as a mere bugbear to frighten children and old women, instances are not awanting to prove that the contagion of small pox, &c., has been imported to several places by means of the bed and body clothes used by those who had died of these diseases; and a melancholy instance is recorded in the history of the island of St Kilda, to which the contagion or small pox was introduced by clothing so impregnated, that loathesome disease nearly depopulated that interesting island, a very few only escaping its ravages. Without entering on the doctrines of the contagionists, or non-contagionists, utility being our chief object, it is a question well worthy the consideration of the philanthropist, and public functionaries, whether the establishment of washing-mills with suitable hot drying stoves, might not or rather should not be erected in the neighbourhood of our cities and great towns, for effectually cleansing the bed and body clothes of poor families or individuals who have been long confined to bed, or have died of fever, small pox, and other diseases, whether these diseases be contagious or not. The families or individuals being supplied with other clothing while the foul clothes are undergoing the cleaning process. We are convinced such an establishment would be attended with the best effects, and that many who could afford to pay for the operation, would avail themselves of the benefits, and thus lessen the expense of the institution. We hope this hint will not be lost on the many benevolent and wealthy individuals who have few or no relations, and who are often at a loss for instructions as to the best mode of dividing their property among the existing charitable institutions of the country. Such an institution could not fail of proving a valuable auxiliary to hospitals, infirmaries, dispensaries, and to those Christian institutions whose object it is to visit and relieve the sick poor at their own habitations. We have seen many instances not only among the sick poor in the populous cities of London, Edinburgh, and Glasgow, but in rural districts, where such an institution would have conferred incalculable benefit on poor industrious families, and tended materially to curtail the ravages of disease in the district.

Heat, with its attendants, health and comfort, may, as a remedial and preventive measure, be diffused throughout the dwellings of the poor, by seasonable supplies of fuel and warm clothing during the inclement season of the year. With respect to the heating of the dwelling houses of the rich, and of churches, places of public amusement, and manufactories, and of barracks, hospitals, &c. great improvements have lately been made, and those who wish for farther information than is to be found in our various articles on *Ventilation*, &c., will do well to consult the very interesting publications of Dr Arnot and Mr Julius Jeffray on the subject, and the papers of Dr Reid of Edinburgh in the scientific periodicals of the day. Happily, however, for society there is no lack of able scientific chemists and engineers in every quarter of these kingdoms, and even throughout the civilized globe, ever ready to impart instruction and supply apparatus for those who wish them, and can afford to meet the necessary expences.

Animal Heat is that property of all animals, by means of which they preserve a certain temperature, which is quite independent of that of the medium by which they are surrounded, and appears rather to be in proportion to the degree of sensibility and irritability possessed by them. It is greatest in birds. The more free and independent the animal is, the more uniform is its temperature. On this account, the human species preserves a temperature nearly equal, about 96—100° Fahr., in the frozen regions at the pole, and beneath the equator; and on this account, too, the heat of the human body remains the same when exposed to the most extreme degrees of temperature; in fact, cold at first rather elevates, and extreme heat rather depresses the temperature of the human body. Fordyce and Blagden endured the temperature of an oven heated almost to redness, and two girls in France entered a baker's oven heated to 269° Fahr., in which fruits were soon dried up, and water boiled. A Spaniard, Francisco Martinez by name, exhibited himself, a short time since, at Paris, in a stove heated to 279° of Fahr., and threw himself immediately after into cold water. Blagden was exposed in an oven

to a heat of 257°, in which water boiled, though covered with oil. There is also a remarkable instance of a similar endurance of heat, by the *convulsionnaires*, as they were called, upon the grave of St Medardus, in France. A certificate signed by several eye-witnesses, among whom were Armand, Arouet, the brother of Voltaire, and a Protestant nobleman from Perth, states that a woman named la Sonet, surnamed the *salamander*, lay upon a fire nine minutes at a time, which was repeated four times within two hours, making, in all, thirty-six minutes, during which time fifteen sticks of wood were consumed. The correctness of the fact stated is allowed even by those opposed to the abuses in which it originated. The flames sometimes united over the woman, who seemed to sleep; and the whole miracle is to be attributed to the insensibility of the skin and nerves, occasioned by a fit of religious insanity. These facts are the results of a law of all living substances, viz., that the temperature of the living body cannot be raised above certain limits, which nature has fixed. There is also an increased flow of perspiration, by means of which the heat of the body is carried off. The extreme degrees of cold which are constantly endured by the human frame without injury are well known, and are to be explained only by this power in the living body to generate and preserve its own heat. The greater the irritability of individuals, whether from age, sex, or peculiarity of constitution, the greater the warmth of the body: it seems also to depend, in part, upon the quickness of the circulation of the blood: thus children and small animals, whose circulation is lively, feel the cold least. The heat and the power of preserving it differ also in the different parts of the body; those appearing to be warmest in which there is the most copious supply of blood, as the brain, the head and neck, the lungs and central parts of the body. We see, also, that when the irritability of the body, or of any part of it, is particularly increased, the heat of the part undergoes a similar change. Increased activity and motion of the body, as in walking, running, &c., and diseases of increased excitement, as fever and inflammation, produce a similar increase in the temperature of the body. All this justifies the conclusion, that animal heat depends chiefly upon the irritability of the body, and is thus most intimately connected with the state of the nervous system. This view is confirmed by the late experiments of Brodie, who ascribed this power of the living body to the influence of the brain. He destroyed the brain of a rabbit, and kept up the respiration by artificial means; but the heat of the animal regularly diminished.

HECTIC FEVER. This is a term which has become familiar even to the general reader, as nothing is more common than to hear of a hectic flush; but while the words are so familiar, their true import and meaning are not so generally understood, although there are few subjects more interesting either to the professional or domestic practitioner. Hectic then is a disease which consists in peculiar febrile action, which generally appears to be symptomatic of some other affection; but which necessarily becomes itself the immediate object of our attention. It is indicated by a frequent but feeble pulse, by circumscribed flushes of the cheeks, by heat in the palms of the hands and soles of the feet, by profuse perspirations, by watery alvine evacuations, and by a deposition from the urine which has been termed a lateritious, or branny and brick dust sediment. Hectic fever is likewise remarkable for its periods of accession and decline, returning daily with noon and evening exacerbations, and remission in the morning, but not often complete apyresia or intermission of the feverish heat; or to be more plain, for on this subject we would not wish to be misunderstood, it comes on at a certain stated hour, which is generally in the afternoon or evening; the patient goes through the successive stages of chilliness, heat, and perspiration, and is after some hours left comparatively free from complaint; and most systematic writers affirm that it is not unusual for two paroxysms to occur during each diurnal revolution. The appetite remains a considerable time without being much impaired, and although the prostration of strength is very great, and the patient is daily harassed by a variety of distressing symptoms, yet it is a striking feature of the disease that the spirits are little affected, and the patient retains hopes of recovery almost to the last hour of existence. Dr Bostock very judiciously remarks that 'there is no disease in which the body suffers so remarkably, free from the effect of mere emaciation; it appears as if every part suffered exactly in the same proportion, so that life is enabled to continue, although the actions of the machine are reduced to their lowest possible pitch, until they all cease together.'

Hectic fever is a subject which especially calls for the attention of students and young practitioners in surgery, and of all who would extend whatever aid it is in their power to bestow on their fellow-creatures in distress. It is very frequently the sequel of large collections of matter or abscesses, in which a previous high degree of inflammation existed. John Hunter very justly regarded it as a sympathy of the whole system with a local disease that has gone on beyond a certain period. When the discharge is considerable in such cases, and continues so for several days after the inflammation has subsided, a tendency to hectic fever will soon begin to show itself. It is indeed surprising how very soon the hectic symptoms, as above described, will come on after the subsid-

ence of the inflammation, especially when no immediate prospect of a cure presents itself; the transition from the inflammatory fever to the hectic being then so sudden as hardly to leave any intervening condition of the system between them. Let then every practitioner, but especially the non-professional, for whose benefit we are more especially concerned, recollect that whenever there is a local injury or disease of any extent or severity, that they may expect the appearance, in the early stages, of a greater or less degree of sympathetic inflammatory fever, and that when this ceases, hectic fever, which is also a sympathetic fever, may follow. The inflammatory sympathetic fever will be found explained under the article *Inflammation*, to which we refer. Hectic fever is indeed often one of the consequences of long continued and profuse suppuration; however, it may come on without being preceded by any suppuration whatsoever, and therefore, it has been improperly named by some popular writers as suppurative fever, for it is doubtless produced by the long continued irritation of any long continued disease, whether suppurative or not.

The following may be regarded as a short but correct exhibition of the two species of sympathetic fever resulting from severe local injury, and its lineaments should be deeply engraven on the memory. The irritation then of a recent local injury, accompanied by acute inflammation, produces the sympathetic inflammatory fever; this is an immediate effect. On the other hand, when the constitution has been in some degree reduced by the effect of a severe local disease that has existed a certain time, and which has not, or cannot be promptly removed, hectic fever is the result; and in this view it may be considered as the remote effect of the local disorder. Again, the sympathetic inflammatory fever is characterized by increased action, and every symptom of it indicates strength. While the great feature of hectic fever is debility, and as contrasted with the quick and acute nature of the other febrile disturbance, it partakes of all the characteristics of a protracted and chronic disease. Before, however, we conclude our historical account of the nature of this disease, it may be proper for us to remark, that generally in the hectic produced by surgical diseases there is either loss of appetite, or impairment of digestion; while, as we have before observed in the hectic of phthisis or consumption, the patient will sometimes eat well to the last; yet in this example more or less flatulence, and other symptoms of indigestion, commonly prevail. We may likewise notice that as the disease progresses towards the morning, the exacerbation is followed by a profuse perspiration, so profuse as to wet not only the body linen, but likewise the sheets, and the patient lies bathed in a cold clammy sweat. Diarrhæa usually comes on in the latter periods of the disease which it is often very difficult to check, and then the night or very early morning sweats frequently subside. These sweats or perspirations, or diarrheas or laxness, are technically termed colliquative, because it seems as if the patient, who is in an alarming state of emaciation, were melted away, or dissolved by their combined action. The urine is pale and limpid during the hot fit, but after the sweating stage it deposits a sediment of uric acid; and an edematous, or swelled state of one or both extremities, sometimes precedes or indicates the approach of death.

Nothing remains to be said on the diagnosis of the disease, and even very little on its causes. With respect to its causes, hectic, as may be learned from what is stated above, is obviously, in a great majority of cases, sympathetic, and depends upon the presence of some local affection, generally of the nature of an abscess, and thus giving rise to a most unfounded opinion that it was immediately caused by the absorption of pus. Although in most cases a professional man, or even a domestic practitioner, may be able without difficulty to assign the cause of the primary complaint, yet this is not always the case, as there are a few instances in which it would appear that a mere mental affection has produced a febrile state, very nearly if not altogether, identical with the usual form of hectic. Of this we have a striking example in the Nostalgia of systematic writers, an actual disease which is brought on by an anxious desire sometimes experienced by individuals to return to their native country, an affection that obtains to a very great extent among the Swiss soldiers in the service of foreign powers, and is not unfrequently induced by their listening to any of their national airs either sung or played. A similar feeling leads to the practice of dirt or earth eating by the African slaves, producing what is denominated the African cachexia, and in both the Nostalgia of the Swiss and the Cachexia of the negroes, are almost the same symptoms and wasting of the body present as in hectic fever. The treatment of hectic may be almost said to be included in a single indication, viz. the removal of the exciting cause, and there is no doubt where this can be accomplished, the fever will soon disappear, and all the functions resume their natural action, while without it, it is doubtful whether there be a single remedy which can be of any essential service. Indeed, however, it often becomes an important object to endeavour to remove the particular symptoms, as their immediate effect is sometimes so injurious to the system as even to increase the original disease. Thus, all that can be done in the hectic of consumption of the lungs is merely to palliate or relieve the symp-

toms, and hectic, as connected or sympathetic with consumption, is the most flattering and delusive of all diseases, a circumstance already alluded to as characteristic of its existence. John Hunter, whose sententious remarks are well deserving attention, draws this useful distinction between a hectic fever arising from a local disease that is absolutely incurable, and a hectic fever produced by a similar disease that is curable, if the constitution had sufficient strength, or could hold out long enough. In the first case there is no possibility of recovery, and all that can be aimed at, as in the case of consumption, is to palliate the symptoms, and this is the melancholy truth when the exciting cause of the constitutional disturbance is irremediable. Local diseases, however, which cannot be cured by external applications, or by internal remedies, and which would soon destroy the patient by hectic, if treated on the palliative system, may sometimes be completely removed by a surgical operation. For example, when the knee, ankle, wrist, or elbow, is affected with a disease which has no chance of being cured, the part may be removed by amputation, and the patient exchange an incurable disease for a curable wound. In this, we have a happy example of the beneficial exchange of an incurable disease for a curable wound, in every instance where a diseased part, keeping up dangerous constitutional disturbance, is removed by a surgical operation. The exciting and keeping up of hectic symptoms is the reason why some diseased breasts, and other organs in a state of disease, are frequently removed, beautifully illustrating one grand principle in surgery, that the cure of the disease requires the removal of the exciting cause; for if a diseased joint produces symptoms of hectic, as it often does, how can we expect such fever to be cured so long as the local disease remains? Again, if copious or long continued suppuration should give rise to hectic fever, what hope of its subsidence or relief could be rationally entertained while the suppuration is going on? From these facts and reasonings it is therefore clear, that if hectic fever depend on an incurable local disease of a part that is not removable, as of an ulcerated lung or lungs, the case is without remedy, and all that can be done is to palliate the symptoms.

The symptoms which most particularly and frequently call for palliation, are the sweating, and the diarrhea; but it too often happens that all our efforts for this purpose are unavailing. Besides, we unfortunately find that whatever checks one of these disorders tends to increase the other. Thus, if we use acids, or admit cool air to the surface of the body to diminish the perspiration, we aggravate the diarrhea, while by warmth, opium, and astringents, we perhaps remove, or at any rate greatly palliate, the diarrhea, at the same time bringing back the perspiration. The tendency which the body has to fall into a state of profuse sweating during sleep, is remarkable, and what is not easily accounted for; but the fact is indisputable, and our preventative efforts quite ineffectual. The perspiration, however profuse, is to be regarded as less injurious than the colliquative diarrhea, and therefore, we are at all events to endeavour to obviate the latter, although we may by this means necessarily bring on some degree of the former. The remedies in this case are astringents combined with opium, and our experience has taught us to rely most on a combination of these. A mixture consisting of half a pint of the decoction of logwood, two ounces of the tincture of catechu, and the same quantity of syrup of red roses, or simple syrup, may be given in doses of a small wine glassful every three hours, and an enema of two ounces of thin starch, and forty drops of laudanum at bed-time. As little disturbance should be given the patient by the administration of the enema as possible, and no motion that can be avoided resorted to by the patient that would occasion its discharge, for if the enema is not retained nearly an hour little good will follow. Opiates should, however, be as seldom given by the mouth as possible, as they frequently produce even in the most approved form disagreeable nervous sensations, which are neither so frequent nor so powerful when the opium is given in the form of enema. There is another mode of administering the astringent mixture which answers very well, which is in doses of one or two table spoonfuls after every loose motion. The chalk mixture answers very well in some cases, and may be united either with kino or catechu, as eight ounces of the chalk mixture, two ounces of the tincture of either catechu or kino, and two ounces of syrup of poppies, may be administered as already hinted, in doses of two spoonfuls after every lax motion of the bowels. The food should consist of arrow root jelly, or potatoe starch, and flour jelly sweetened with a small portion of sugar, a little port-wine, and a few drops of essence of cinnamon being added. When there is much increase of temperature with thirst and dryness of the fauces, a draught may be taken at bed-time, consisting of two grains of Dover's powder rubbed in a Wedgewood mortar with half an ounce of simple syrup, and one ounce of cinnamon water, and forty or forty-five drops of sweet spirits of nitre. This taken as a dose at bed-time will act as a diaphoretic, and frequently afford relief in such circumstances. The apartment in which the patient lives should be kept of as uniform a temperature as possible. Foxglove has been recommended in hectic, and it may occasionally afford some relief in the hectic of consumption, as may belladona, hemlock, and other vegetable narcotics; but they should never be resorted to in this disease by non-professional

advisers. Confident accounts too are given of the beneficial effects of carbonic acid in allaying the irritation, and especially in retarding the pulse by its sedative operation; but these flattering prospects of success have never been realized when the remedies have been tried except by those who originally proposed them or their professed advocates.

Supposing, says Professor Samuel Cooper, (whose excellent remarks on this and other branches of medicine and surgery, in the two standard works, his Dictionary and edition of Good's Practical Medicine), hectic fevers to depend on a local disease which would be curable if the constitution could hold out, then the main indication must also be to support the strength of the system, and to lessen the irritation of the exciting cause; while therefore we should employ every means to improve the condition of the local disease, we should administer such medicines and diet as will be most likely to support the constitution in its struggle. But adds Professor Cooper, 'I fear we have no medicine capable of communicating strength directly to the constitution; bark, which was once thought to possess such virtue, is now no longer considered to have this efficacy; it was formerly regarded almost as a specific for hectic fever as well as for mortification; but it does not now retain this kind of character.' Bark and its preparations we have often found of very considerable service in improving the appetite, and giving tone to the digestive organs, thus indirectly strengthening the system, but it has no specific virtue of imparting strength in proportion to the quantity of it swallowed and digested. No preparation, however, either of bark or quinine agrees with the patient when the bowels are disturbed. If quinine is employed, it may be given in doses of two, four, or even five grains, in a wine glassful of the infusion of roses, which contains both sugar and sulphuric acid, and like the above preparation of bark, is an agreeable and even elegant medicine. Much, however, indeed almost every thing, depends on watching the very speedy change from the inflammatory sympathetic fever to that of the hectic, as if once the change is fully established, and this giant malady in full possession, all the combined forces of professional skill and experience furnished with ample stores, of both ancient and modern medical weapons, will assuredly be put to flight. And in such circumstances, before concluding let us warn the victims of this disease, and their friends, of the absolute folly of climate hunting. For all such 'home and its comforts is the best hospital.' A change of climate often produces almost miraculous effects on those who have only entered on the first stages of consumptive disease, and the west of England, and several districts in Ireland, will be found, upon trial, equal if not superior to any foreign station except Madeira. Many set out in the delusive hope of returning home in sound health, who never reach the healing breezes in search of which they are often so cruelly dispatched. Such was the case of the pious and amiable Dr Doddridge, and of our own heavenly-minded and talented Pollock, whose body rests in peace at Southampton. 'Did these deluded victims who are sent to such a distance, (says Dr Weatherhead in his Pedestrian Tour in France and Italy), frequently to die on the road, know what they sacrificed when they left the comforts of home, the healing solace and sympathizing attentions of friends for the fallacious assurances of a more genial climate, they would never quit their native shores for the cold recompence of lying in a grave beside her whose fate gave occasion to the Night Thoughts.' (Young's daughter died and was buried in Montpellier). Indeed, it would not be difficult to prove that there are more of the natives of many of the boasted refuges for the hectic and consumptive, who die of these diseases, than in many quarters of Great Britain. See *Pulmonary Consumption*, Appendix.

HEDGE HYSOP, or *Gratiola Officinalis*. The hedge hysop used in medicine is procured from the south of Europe, and we think it might as well be procured at home, not being either a tender or delicate herb. It is inodorous, having a strong bitter nauseous taste, and possesses anthelmintic, diuretic, and purgative qualities, and has been used to expel worms, in dropsy, mania, and even lues venerea. The dried leaves purge and vomit briskly in the dose of half a dram, and of a dram infused in half a pint of boiling water with the same quantity of bruised fennel seeds, and taken in two separate doses; or the leaves in powder, in doses of ten grains in jelly every hour till it operates.

The extract of the root is said to be more efficacious than the plant or leaves, and in doses of half a dram twice a day, produces the best effects in dysentery, but of this we have no experience. A physician in the hospital of Vienna says that three maniacal patients were perfectly recovered by its use, and in the most confirmed cases of lues venerea it effected a complete cure. From what we have seen of the effects of the herb we have no doubt every part of the plant is valuable; but it is one of those articles of the materia medica which is well deserving attention, but far too violent to be admitted, except on an emergency, into the practice of domestic medicine, and then an ounce of the plant may be boiled in a pint and a half of water down to a pint, and taken in doses of half a wine glassful every hour till it operate by stool and urine. Half an ounce of sweet fennel seeds may be added to the decoction ten minutes before it is removed from the fire, which is to be filtered while hot.

HELLEBORE, Black, or CHRISTMAS ROSE, or *Milampodium*, or the *Helleborus Niger of Linnæus*. This plant is not uncommon in our gardens, although what is used in medicine is principally procured from Austria. It has a disagreeable odour, and a bitter acrid taste; when chewed it benumbs the mouth; but this quality is greatly impaired by drying and keeping, and indeed, all its medical virtues are speedily dissipated or greatly diminished. The ancients esteemed it a powerful remedy in maniacal cases, and it is still occasionally employed in these cases as well as in dropsy, melancholia, and suppression of the menses. It is seldom used in substance, but an extract and tincture are ordered by the colleges. The latter is prepared by macerating or infusing two ounces of the root, (cut in small pieces and bruised), in a pint of proof spirits for seven days, and then strained or filtered. The dose of this is from half a dram to a dram twice a-day. It possesses the virtues of the root, being alterative, and emenagogue, and useful in plethoric habits where chalybeates or preparations of iron would be hurtful. We have seen the best effects result from taking one dram of the tincture and thirty drops of laudanum in a cup of pennyroyal tea at bed-time, in cases of scanty, painful, and difficult menstruation, and two pills made by forming a mass of equal parts of the powder of socotorine, aloes and myrrh, and of the extract of the black hellebore every morning, one or two days previous to, and during the time of, menstruation. A scruple of each of the powders and half a dram of the extract, may be made into twelve pills, which will suffice for one period.

Black hellebore is one of the most violent drastic purgatives when used in large doses; it is, however, in addition to the cases already stated, sometimes employed in obstinate cutaneous diseases. Except the tincture and extract used in the way we have pointed out, we do not think hellebore should ever be used in domestic medicine.

Helleboraster, or *Helleborus Fœtidus*. The indigenous plant has a fœtid odour, and a bitter acrid nauseous taste. It is cathartic and anthelmintic, and used in cases of worms, in doses of from half an ounce to an ounce of the decoction, which is made by boiling two drams of the dried leaves in half a pint of water for fifteen minutes and straining. It should never be used in domestic medicine, as it is a powerful poison. See remarks under the next article.

White Hellebore, or *Veratrum Album*. The root, which is the part used, is inodorous, and has a bitter, acrid, nauseous taste, and is of a grayish brown colour when dried and powdered. It is externally stimulant, and acts with great violence both as a purgative and emetic, and likewise as an errhine, causing violent and long continued sneezing. It should never be used internally as a domestic medicine, and never in any case but by the advice of an experienced practitioner. There is an ointment and decoction ordered by the colleges both of which are applied externally in scabies, itch, and other diseases of the skin. The ointment is prepared by mixing two ounces of the powder with eight ounces of lard and twenty drops of essence of lemon; and this ointment is frequently applied to the eruption on the skin. The decoction is made by boiling one ounce of the bruised root in two pints of water down to one, and straining the decoction while hot, and when it is cold adding to it two ounces of strong spirits. This is employed in the same cases as the ointment, and used as a wash in scald head and other foulness of the skin; but where the skin is very tender and much of it is peeled off, and in young persons so powerful is the medicine, that it requires in some cases to be diluted with one half of water. The powder sprinkled on a blistered surface will act as a purge. As an errhine, if mixed with equal parts of any mild powder, a few grains may be taken as snuff, in cases of chronic headache, or affections of the eyes, where a discharge from the nostrils is required. These, however, are all the cases and forms in which it ought to be employed by those who have not had a regular education, although the colleges have ordered both a tincture and wine of the root, which is used in gout, mania, and other diseases. There is likewise a peculiar principle called veratrine obtained from it, which is a violent poison in the very smallest quantity.

All the hellebores, but especially the white hellebore, are violent poisons, operating on the stomach and rectum with such violence that blood is usually discharged. It likewise acts very powerfully upon the nervous system, producing great anxiety, tremors, vertigo, confusion of vision, fainting, interrupted respiration, sinking of the pulse, convulsions, spasms, and death. Dissections of those who have died of the effects of this poison, show the most severe corrosions and other marks of inflammation of the internal coats of the stomach and bowels. Persons who have taken over-doses of any of the three kinds of hellebore we have noticed, but especially this last, should be treated with great promptness and decision. The contents of the stomach should be evacuated by large draughts of oily and mucilaginous liquids, such as linseed tea and melted butter, and the rectum and lower parts of the bowels sheathed by dissolving butter in linseed tea, and throwing it up cautiously as an enema, so that it may remain for sometime, with thirty drops of laudanum in the liquid. If the enema is immediately returned, another gill of linseed tea, two ounces of fresh butter, and the same quantity of laudanum,

should be again used as soon as they can be got ready, a large mustard cataplasm or sinapism, the size of two of our pages, should be applied over the region of the stomach and bowels, and if inflammatory symptoms run high, bleed and use the other means recommended in such cases, and give freely coffee, lemonade, or vinegar and water. The application of cloths wetted with camphorated spirits to the head should not be neglected. We repeat that, however valuable veratrine and the other preparations of white hellebore may be, they should be entirely excluded from the domestic medicine chest. Indeed, mischief has sometimes resulted from the incautious use of this powder of white hellebore as snuff.

HEMIPLEGIA. Paralysis affecting one complete side of the body. It frequently follows a stroke of apoplexy. For a detailed account of the method of treatment, see the article on *Palsy*.

HEMLOCK. *Conium Maculatum.* This well known plant grows plentifully in the neighbourhood of moist, shady places about the sides of fields and under hedges. It is very poisonous, more particularly in spring and autumn. When taken in an overdose, it produces giddiness, dimness of sight, tremours, palsy, and the other symptoms which usually follow narcotic vegetable poisons, and the treatment to be adopted is the same as that recommended when speaking of poisoning with belladonna. As a medicine it may be used safely in small doses as an anodyne narcotic. It is a good palliative in cases of pulmonary irritation. It is used principally as an external application in the form of a poultice in cancer, and irritable ulcers. When given internally, the dose is from one to five grains of the extract in the form of a pill. The poultices are made with the powdered leaves.

HEMOPTYSIS, OR SPITTING OF BLOOD. The symptoms of this affection are in general a redness and flushing of the cheeks, pain, and a sense of uneasiness or sometimes heat in the chest, with more or less of a hicking cough, followed by the ejection from the mouth of blood, florid and sometimes frothy. There is frequently a sense of oppression about the heart, difficult respiration, and the expectoration has more or less of a saltish taste. This disease may be distinguished from vomiting of blood by the blood being more frothy and florid, and not of so dark and grumous a colour as that vomited from the stomach, and which usually comes in greater quantities than that merely brought up by the act of coughing. That, too, brought up from the stomach is frequently mixed with undigested food, or other of the contents of that organ. In addition to these symptoms, there is sometimes a hard full pulse at the time of the discharge, and irritation is felt in the larynx, or upper part of the wind-pipe, while in vomiting of blood the irritation is more felt at the stomach.

Causes. This disease is more frequent in youth than advanced age, and in scrofulous and plethoric constitutions. It is not, however, always to be considered as a primary or distinct disease; but most frequently as a symptom, or precursor of another, and it is most frequently followed by consumption. A narrow or confined chest, an obstructed state of some of the viscera, or the suppression of an accustomed evacuation, and suddenly checked perspiration, have been considered as predisposing causes; while violent exercise, leaping, impure air, air too much rarified, and mental agitation, are the chief exciting causes. An unfavourable prognosis may be formed of a case of hemoptysis when the discharge indicates anything of a consumptive tendency in the lungs, and when the affection has been preceded or accompanied by symptoms of consumption. On the other hand, it is not dangerous in a strong healthy person of otherwise sound constitution, unless it go to a great extent, or where the discharge leaves behind no cough, difficulty of breathing, or pricking pain in the chest, or where there is not a confirmed scrofulous habit, and the person is free from other organic diseases.

Treatment. As the disease generally appears in the young and plethoric, recourse may in general be had to blood-letting, and from eight to twelve ounces of blood taken from the arm. The patient should be subjected to the antiphlogistic regimen, and nothing stronger than sowens or acidulated gruel, or barley or rice water with dry toast given, and no food or drink above blood heat should be taken. This is the more necessary when a person spits up a large quantity of blood from an affection of the bronchial tubes, or in consequence of what has been called a pulmonary apoplexy, or in more plain language, a determination of blood to the lungs. In this state of matters the most active means should be employed. The bowels should be opened with an ounce of sulphate of magnesia, dissolved in half a pint of infusion of rose leaves, and one third of the mixture taken every three hours. Immediately after this has operated, a three grain pill of powder of ipecachuan, may be administered every half hour till the discharge of blood begins to cease. Half a dram of the powder may be mixed with a sufficient quantity of conserve of roses, and formed into ten equal pills. A fourth part of the following mixture may likewise be given every four hours:

Best picked gum Arabic, one ounce and a half.
Boiling water, three ounces.

Triturate the gum with the water in a Wedgewood mortar until it is dissolved, and strain through a thin linen cloth. To this solution of the gum, add forty grains of nitre, one ounce of

simple syrup, and add to the mixture thirty-two drops of tincture of digitalis. If this mixture, which should consist of four ounces of fluid, and the ipecachuan pills, relieve or lessen the discharge, they may be omitted, and barley water or artificial ass milk, acidulated with elixir of vitriol, substituted in their place. Rest, and a cooling regimen should be enjoined, and when once the spitting has ceased, the best means to prevent a recurrence of it is to observe the most strict and rigid temperance. When, however, it appears to be the precursor of consumption, the means employed for the prevention and alleviation of that disease must be resorted to. In ordinary cases a dram or a dram and a half of nitre, dissolved in a pint of the artificial asses' milk, and taken in divided doses, in the course of twenty-four hours, will often prove effectual; or the same quantity of nitre and barley water with gum, or a pint of the infusion of rose leaves acidulated with diluted sulphuric acid, will often prove equally efficacious. Otherwise, let the best advice be taken in the case, if there are any well grounded suspicion of a consumptive tendency.

HEMORRHAGE is the medical term used to denote a flow of blood either from the rupture of a blood vessel, or in consequence of a wound or other external injury. The former, or spontaneous hemorrhages, will be found fully treated of under their various heads, such as *Hemoptysis* or *Blood-spitting. Nose, bleeding from*, &c. Whilst bleeding from wounds, and the methods used for arresting it, will be found fully detailed in the articles on *Wounds* and *Aneurism.*

HEMORRHOIDS OR PILES. These are small purple coloured tumours, situated around the anus; or rather, they form a chain of tubercles disposed in a circle either without or within the anus; they have long been recognised by the designation of external and internal piles, and some have added other two divisions of bleeding and blind piles. So long as these tumours have not degenerated in their structure, so long as they do not give rise to discharges of blood, or to abundant discharges of sero-purulent fluid, throwing the patient into a state of profound and characteristic anemia or flatulence, the excision or cutting off these bodies is not advisable to remedy the accidents, or rather inconveniences to which they give rise. Antiphlogistic and mild treatment frequently dissipate them; such for example, as keeping the bowels in a moist easy state, by small doses of castor oil, or a tea spoonful or two of equal parts of magnesia and sublimed sulphur, vulgarly known by the name of flowers of sulphur or brimstone in a cup of sweet milk at bed time, or the same ingredients mixed with treacle or molasses. It will likewise be found very beneficial to sit over the steam of warm water while at stool, and keep the parts very clean. In many cases, however, they are more obstinate. The external piles, or hemorrhoidal part, as it has been called by Dupuytren, is formed of a circular range of soft and roundish tubercles, as we have already stated, of a brownish colour externally, where they are covered with the skin, and of a bright colour internally, where they are enveloped by the mucous membrane. Rarely ulcerated on their external surface, they are frequently so on their internal, and give rise to hemorrhages more or less abundant, and to purulent discharges, which tend to weaken the patient. The internal hemorrhoidal part situated within the anus, is often strangulated by the sphincter muscle which shuts that aperture, in consequence of its becoming swollen, or by the protrusion of the lining membrane of the rectum. It gives rise to the same unpleasant consequences as the former or external part, and is known by the bright red colour of the tubercles. The two varieties, as already stated, sometimes present themselves in the same patient. Individuals afflicted with the latter species (*the internal*) walk with difficulty. Arrested every now and then by the severity of their pains, they may be seen either to carry their hand to the part affected, or sitting down on a post or stone in order to make the piles re-enter the anus. This expedient affords a temporary relief. More or less reduced by the abundance and frequency of the hemorrhage, or the flow of sero-purulent matter, the patients become thin, their skin is pale, and they have the appearance of persons worn down by exhaustion and disease. They often fall into a state of sadness and even of profound melancholy. Their intellectual faculties are weakened, and they are often weary of life. While the local degeneration is making progress, a cancerous affection of the anus and of the interior part of the rectum declares itself by unequivocal symptoms, and the death of the patient will be the end of this progress if these unfortunate tendencies be not opposed. This is a picture which is too often exhibited in our hospitals and infirmaries, by those who neglect proper treatment in the commencement of the disease, and leave themselves no other remedy but the excision which should be performed by the most skilful and experienced surgeon that can be procured.

Before however, reverting to this ultimate measure recommended by Dupuytren and other high authorities in medicine and surgery, they should have tried every other means of relief. In addition to those we have recommended, we have seen the application of leeches to the parts of very great service. The following ointment will be found very useful where there is much itching and uneasiness; a small portion should be applied and introduced at bed-time and after

every stool when the parts have been previously cleaned.

Prepared white lead, half an ounce.
Muriate of morphia, one scruple.
Powder of galls, one dram and half.
Extract of stramonium, half an ounce.
Hog's lard, two ounces.
Melt the lard, and then rub it while hot with the extract in a stone mortar, till the two are uniformly incorporated; then add the other ingredients, and continue the rubbing, till a smooth ointment is formed. If it appears too hard, a little olive oil may be added.

This ointment often affords incredible relief in the itching and irritation occasioned by piles. We warn all those who are afflicted with this complaint, to attend to the state of the bowels and the use of the steam, as advised in the preceding part of this paper, and those who are averse to the use of the sulphur may take as much of the compound powder of columba as they can lift on a halfpenny, night and morning, in a wine-glass of water. Hard, indigestible food, cheese, crusts of pies, but especially wine and spirituous liquors, ought to be studiously avoided. In fine, were the means we have recommended pursued with even an ordinary degree of perseverance, the knife of the surgeon would seldom be required in a case of hemorrhoids either external or internal.

HENBANE, or *Hyosciamus Niger*, or the *Common Henbane*. Henbane is an annual plant which is not uncommon in many parts of Great Britain, growing on the road sides and among the rubbish of old buildings. It has a peculiar narcotic odour, not unlike tobacco when burned, and an insipid mucilaginous taste, both which qualities the leaves lose by drying. Although the leaves and seeds are the parts of the plant ordered by the colleges, the root possesses the same qualities, and even in a superior degree. Its effects are anodyne, narcotic, antispasmodic, and slightly stimulant; when taken in large doses, it acts as a narcotic vegetable poison. It is, however, a very valuable medicine, procuring ease and sleep, and that too in some cases in which opium fails. It is ordered in the forms of extract and tincture. The extract is used in doses of from five grains to a scruple, generally in the form of pills, gradually increasing the dose: it is sometimes given alone, and sometimes in conjunction with resinous purgatives, to prevent griping. It often allays nervous irritation, rheumatic and gouty pains, chordees, or heat of urine, without producing the costiveness occasioned by the use of opium. The tincture is used for the same purposes, and is prepared by macerating two ounces of the dried leaves in one pint of proof spirit for seven days, and then strain or filter. The dose is from sixteen to seventy drops, or more according to circumstances; it may be taken in plain water or peppermint tea. Thirty drops of this tincture, and twenty drops of laudanum, will often procure sleep when laudanum alone fails. A poultice formed of the leaves by boiling an ounce of them in half a pint of milk, and adding as much crumb of bread or oat meal as is necessary, may be applied with advantage to indurations and pains in the breasts from retained milk, painful swellings, whether scirrhous or not. The same poultice is likewise useful in scrofulous and cancerous ulcers and inflamed piles. Except as an external application, it is not to be tampered with as a domestic medicine, except by a strict adherence to the directions. In too large a dose it occasions profound sleep, hard pulse, and sometimes fierce delirium, ending in convulsions, with a remarkable dilation of the pupil, distortions of the countenance, and a weak tremulous pulse. The best remedies are an emetic of sulphate of zinc, a sinapism to the stomach, and drinking freely of lemonade or vinegar and water, as in the cases of hemlock, and other vegetable poisons. See *Plate*.

HEPATITIS or INFLAMMATION OF THE LIVER. There is, perhaps, with the exception of nervous affections, no other class of diseases so fruitful a source of uneasiness as those various shades of complexion which affections of the liver assume. There are, however, among all the real and imaginary degrees of disease with which this important organ of the body is attacked, two diseases, about the existence of which, the faculty are generally agreed, and these are acute and chronic hepatitis, or in other words, acute and chronic inflammation of the liver. These terms acute and chronic, strictly refer either to the violence of the symptoms, or to the length of their duration, but the two species of inflammation seem to have an essential difference more than depends upon mere degrees. Acute and chronic inflammation are particularly well marked in diseases of the liver; and it is of great interest to the physician and of greater interest to the patient, to be able to distinguish accurately between these two varieties. Acute hepatitis implies something specific, an organic change, the nature of which is well known and accurately defined, but chronic hepatitis implies nothing of this certainty of the nature of organic change, inasmuch as there is no single one of the recognised disorganizations of the liver, which may not, and have not occurred with chronic hepatitis as an exciting cause or a prominent symptom. But to render the matter as plain to the general reader as possible, the first consists of these symptoms which might be supposed to originate from an excitement of the sanguiferous vessels of the part, pain and enlargement of the right hypochondrium, with an acute and inflammatory fever; while in the chronic variety there is much less pain, the swelling comes on gradually, the fever is less violent in its attack, and all the symptoms are

less rapid in their progress. In the acute disease the functions of the part seem to be but little affected, and only to suffer in consequence of the disorganization or absolute destruction of a portion of the liver, while in the latter, or chronic, some of the first symptoms that we experience are an irregularity of the biliary secretion, producing jaundice, and particularly affecting the stomach and bowels. These varieties, too, differ in their cause, as well as in their symptoms; the acute state is produced by all those circumstances which induce inflammation of other parts; such as exposure to cold, external injuries, violent exercise, while the chronic is generally the effect of a residence in warm climates, or the intemperate use of spirituous liquors. The two varieties, however, although often sufficiently distinct, are not unfrequently combined together, or succeeded the one by the other, and some of the exciting causes seem to be capable of generating either of them, according to the degree in which they are applied. This is particularly the case with respect to the use of ardent spirits; and we also observe, that external heat, which generally produces the chronic species, occasionally gives rise to the acute variety. The proximate cause of the latter variety, or the mode in which it is excited by exposure to a high temperature, is not fully explained, although it seems reasonable to conclude that it depends on some changes which the bile undergoes in those cases; but it would occupy too much of our space to enter fully on the consideration of this question, which rather belongs to physiology than practical medicine.

The actual difference between these two varieties, it is not improbable, depends upon a difference in the part of the organ primarily affected, the first depending upon an inflammation of the membrane of the liver, while the latter consists of an affection of the glandular parts which secrete the bile. Very little need be added to these definitions; it may, however, be remarked, that the pain varies very much, both in itself and its sympathetic consequences, as one or another part of the liver is affected; the state of the bowels is irregular, sometimes a diarrhœa will be produced by the increased secretion and acrimonious condition of the bile; at other times the inflammation will arrest, or very nearly so, the secretion altogether, and then, of course, there are clay coloured stools, and sluggish bowels, a yellowish tinge in the eye, high coloured urine, the spirits are for the most part dull and oppressed, the pulse is sometimes intermittent; in chronic hepatitis stomach affections become conspicuous, and there is often a tendency to œdematous swellings about the ancles. There are two symptoms in hepatitis, which may be regarded as characteristic of the disease, viz., a difficulty in lying down on the left side, and a pain in the right shoulder, the latter of which it is difficult to account for on any principles, either of anatomy or pathology. The disease also may be distinguished from pneumonic inflammation, or inflammation of the lungs, by the absence of the pain in the shoulder in that disease, and pressure on the liver, which will not occasion the pain it would do if the liver be affected; the patient in pneumonia has neither that sallowness of countenance and oppression of spirits, that are so characteristic of hepatic disorder, while the difficulty in pneumonia is in lying on the side affected, and the reverse in hepatitis. Hepatitis is distinguished from gastritis or inflammation of the stomach, by the seat of the pain and the absence of a burning sensation upon any thing being taken into the stomach, and by the strength not being so suddenly pulled down as in gastritis, nor the pulse so small and oppressed. The acute variety of hepatitis not unfrequently terminates in suppuration, and although there are some remarkable cases when very large abscesses have existed, with much less disturbance of the general health than might have been expected, still the result is most frequently fatal. A few fortunate instances are indeed upon record, where the abscess has burst externally, or into the intestines, and where the cavity has closed, so that the patient has regained his usual state of health, and in other cases the abscess has been opened. The termination of chronic hepatitis is a schirrus of the liver, that state of the organ when it becomes enlarged and hardened, as it appears, from a primary affection of the secretory vessels. This is not attended with any violent pain or acute symptoms, but the functions of the part are gradually destroyed, and the constitution ultimately sinks, in consequence of the various derangements that necessarily ensue, and one of the most troublesome of these is anasarcous and dropsical swelling to such an extent as to impede breathing, and prevent the sufferer from lying down.

This history of the disease will, we trust render the discovery and distinction of this disease in its two varieties familiar to every attentive reader.

Treatment of acute hepatitis. The liver being an organ of paramount importance to life, it is necessary to pursue the most studied and energetic practice. Acute inflammation of the glandular structure of the liver, as Dr James Johnson remarks, 'is comparatively rare in these kingdoms, though in inflammation of its coverings, the parenchymatous portion of the organ, must suffer more or less.' In the early period of acute hepatitis, all authors have agreed in strongly recommending the use of the lancet, and there is no doubt that when the disease is in its early stage, and the patient robust, the omission of these measures must be highly cul

pable. There are two circumstances which are in favour of blood-letting in acute hepatitis: 1. That there is less chance of its being complicated with typhus fever; 2. That general bleeding exercises a powerful influence over the acute inflammation of parenchymatous organs. Hence we bleed with greater advantage in a case of acute hepatitis than in the inflammations of mucous membranes. The first bleeding should be large, and such as will make a decided impression, and it will be frequently necessary to bleed a second or even a third time, if the disease be very acute and the constitution strong, taking care to diminish the quantity at each successive bleeding, and to watch its effects. To guard the domestic practitioner against being too sanguine or feeling disappointment, we may here remark, that general bleeding is not the same heroic remedy, nor has it the same decided influence in arresting acute hepatic inflammation, as in checking pleurisy or inflammation of the lungs. A copious abstraction of blood has, under favourable circumstances, often succeeded in completely removing an attack of these diseases, and the patient has recovered without the employment of almost any other remedial measure, but acute hepatitis is seldom or never cut short in this way. Still venesection is of the greatest importance, and if, as Dr Stokes judiciously remarks, 'if it were performed merely with a view of preparing the patient for leeching and other depletive measures, its advantages would be unquestionable.' Dr Johnson, another high authority on this subject, pertinently observes, 'that the peculiarity of the circulation in the hepatic system indeed causes inflammatory, and other diseases of the biliary organ, to assume a character, and to require a treatment, in some measure specific; for, however rapidly the tone of the whole system be lowered by large and repeated bleedings, both general and local, yet, till the legality and regular secretion of bile be restored, there is no safety for the patient from present danger or future sufferings. In all very high degrees of excitement in the system at large, or of inflammation of the liver itself, the biliary secretion is very much impeded, and even when restored, the fluid secreted is far from healthy at the beginning. On this account, and to prevent chronic indurations or the chance of present suppuration, I always make a point of endeavouring, by every possible means, to re-instate the biliary secretion as soon as possible. This is partly affected by powerful general and local bleeding, and by such medicines as at once act on the biliary organs, and on the whole line of the intestines.' That, however, the unprofessional reader may more readily comprehend the intent and meaning of these observations, we must descend to particulars. When a case of hepatitis is discovered in the early stage, (which we flatter ourselves there will be little difficulty in doing, by those who have read and studied attentively the preceding history of the disease,) the patient should first be bled freely, or in such a manner as to make a decided impression on the symptoms; next, the bowels should be emptied by pills consisting of the following medicine:—

Take of calomel, six grains.
—— James's powder, three grains.
—— Extract of henbane, two grains.
Mix, and divide into two pills.

These may be followed, in three hours, by a draught composed of,

Infusion of senna, two ounces.
Infusion of gentian, one ounce.
Rochelle salts, half an ounce.

And a purgative enema may be administered, should this not act freely.

The region of the liver should be covered over with from twelve to twenty leeches, and when they drop off, cupping glasses should be employed over the leech bites. Great advantage will be derived from the employment of the remedies in this order; for if we begin with leeches before having recourse to venesection, or the use of purgatives, our success will not be so complete. If bleeding, purgation, leeches, and the application of cupping glasses, (or in domestic practice, a stout small tumbler), if necessary, are employed, nothing more need be done, as to medical remedies, for twelve hours, when it is more than probable all the urgent and dangerous symptoms will have diminished. The liver in these cases is gorged with blood; we may leech as much as we please, but unless we empty the biliary ducts of their viscid and depraved secretions, we run the risk of abscess or chronic disorganization of the viscus. In the progress of the case, the remedy which should be principally relied on is the repeated application of leeches, not less than twelve at a time, and the use of the blue pill, in doses of five grains, combined with James's powder, every second night, followed next morning by a small dose of castor oil or some other gentle laxative. In cases where the patient is very strong and robust, we may begin even with thirty leeches, gradually reducing the number by three or four every time; but in ordinary cases from twenty to twelve, as already observed, will suffice, especially if the bleeding from the arm has had its proper effect. By these means a powerful effect will be produced on the biliary secretion, and the bowels kept in a regular state. Sometimes it is necessary to follow up the local bleedings by a blister, and in that case it should be placed over the region of the liver, and a piece of thin muslin over its surface, which will prevent any portion of the plaster from adhering to, or irritating the leech bites, and will rise equally well, and nearly as speedily as if nothing intervened between the skin and the blistering plaster.

In addition to these medical means, a strict antiphlogistic regimen must be enjoined, avoiding

all stimulating food and drinks; arrow root, carrigen moss, sago, rice, and thin well boiled gruel, or barley water, being the most proper articles of diet. Mercury, especially calomel, has been greatly recommended in this disease, but it is seldom required in any other form than in that above recommended. Where it is found that the means already directed have failed, blistering having been resorted to—which by the bye there is no necessity for till the fourth or fifth day, for a blister should not be applied till bleeding and purging have afforded no relief—mercury may be applied externally, in the following manner, and its internal use at the same time discontinued. As soon as the blister has produced vesication, the skin may be cut off, and two drams of strong mercurial ointment mixed with half a dram of finely powdered camphor, applied over the blistered surface and covered with a fine linen rag, made moist with mercurial ointment. Two scruples of the ointment may likewise be rubbed in along the inside of the thighs and arms occasionally, or from the region of the liver to the axilla, every eight or ten hours, until the groins are affected.

When we find a gradual subsidence of the swelling, we may be pretty sure that even though the other symptoms exhibit little or no improvement, the disease is on the decline and will soon be entirely removed.

These and the very best directed means, both as to medicine, diet, and regimen, may, however, fail, and the patient becomes gradually weaker, the face paler and expressive of much constitutional suffering, the skin becomes flaccid and bedewed with perspiration, the pulse is small, rapid, and compressible, the hepatic tumour increases in size, the whole of the right side is evidently enlarged, and if the bowels are empty, the hepatic tumour may be seen extending far down into the abdomen. These symptoms, with shivering fits, profuse and sour smelled perspirations, &c., all unite in telling us that suppuration is commencing, or has already commenced, that an abscess is forming, and that it is absolutely necessary that the line of practice should be changed. The antiphlogistic regimen must now be relinquished, a mild nutritious diet adopted, every thing tending to reduce strength avoided, and anodynes, especially in the form of enemas, administered, such as forty drops of laudanum, and the same quantity of tincture of henbane, in two ounces of beef tea or strong filtered broth, every night at bed-time. The aromatic elixir of vitriol and quinine may likewise be given, and if obstinate costiveness takes place, the bowels may be opened by the castor oil and turpentine enema every second day. When suppuration is once fully established, it becomes a question of some importance, in what direction are the contents of the abscess to escape; and although we have already alluded to this subject in our history of the disease, we may be allowed to remind the reader that it is much better that the abscess should open externally, through the integuments of the abdomen, or into some cavity having an external communication, rather than into a shut sac; as in the latter case it almost, indeed with rare exceptions, proves fatal, and that not unfrequently instantaneously. It is proper to support the patient's strength at this period, by allowing wine, gradually increasing the quantity, especially when nearly overwhelmed by hectic symptoms, and taking care that the diet be nutritious and easy digested; indeed it is always best to combine the wine with thin well prepared jellies of arrow root, carrigen moss, or sago, than give it alone. These means, with the use of opiates in the form already directed, are all that can be done in this stage. On the tumour becoming more elevated and distinct, the pain concentrated in one particular part of the liver, and the abscess evidently pointing towards the surface, the opening then must be referred to an expert surgeon.

As our work may perchance be glanced at by young practitioners, we shall detail the best mode of opening an abscess of the liver we have yet seen described. It has been adopted in the Meath Hospital, Dublin, and is said first to have been recommended by Dr Graves of that hospital, although a similar operation is thus described by Dr Stokes, in his invaluable Lectures on the Practice of Medicine, a work to which we have been indebted for much important information on this and other subjects. 'He makes an incision (says Dr S.), through the integuments, over the most prominent part of the tumour, and carries it through the cellular substance, fat, and muscular tissue, until the peritoneum is nearly laid bare, and there he stops. The wound is then kept open by plugging it up with lint, and after some time the abscess bursts in this situation, with perfect safety to the patient. This operation was performed for the first time, in a case of abscess, where there was no distinct pointing. It was the first operation of this kind, and every one who witnessed it waited with anxiety for the result. Five or six days passed away without any appearance of matter, but about this period the abscess began to point, shortly afterwards there was a large gush of matter through the wound, and the patient recovered perfectly in three weeks.' This is not the only obligation that the faculty and the public are under to Dr Graves, for directing the attention to many important points in practice, as well as some original principles and suggestions. After the favourable bursting of the abscess, the quinine, a nourishing diet, and the nitro muriatic acid should be employed.

Chronic Hepatitis. The *treatment* of this variety is a matter of great importance to fash-

ionable physicians in the metropolis, and at watering places, to which those who have realized a fortune and a diseased liver most frequently resort. The continent and its celebrated mineral springs have indeed withdrawn a vast number of this class of invalids from our British watering places since the peace; but as our continental neighbours are rather behind us in the management of hepatic affections, a graduate of one of our English, Irish, or Scotch colleges, generally takes up his residence at one of these wells, and with this inducement the worn out voluptuary spends the remainder of his days, and a considerable portion of his money, at some of these places of fashionable resort. In the East Indies, where this disease may almost be said to be endemic, hepatitis creeps on in a most insidious manner. Sir George Ballingal has justly remarked, 'that when we hear of patients dying suddenly from this disease who were previously treated as hypochondriacs, and thought to enjoy a reasonable share of health; when we see abscesses in the liver discovered on dissection, while we never before dreamt of it, it ought to awaken our most anxious inquiries, and impress upon our minds the necessity of attention to the symptoms of those insiduous attacks of liver complaint, which reduce a patient to the brink of the grave without giving him any warning of his danger.' In India, says Dr Johnson, the picture of this complaint when it has advanced beyond the primary steps, is very melancholy. This elegant writer and acute observer might have remarked that it is not less melancholy to look on a worn out drunkard and debauchee, who never crossed the ocean or even the British channel, worn out with chronic hepatitis, and sinking to the grave as a victim of intemperance. The disease, indeed, as it appears in Britain and Ireland, is not of that violent character that is to be met with in India; and the picture drawn by Sir George Ballingal is not so faithfully realized in the home cases of the disease; for the latter often yield to a judicious employment of mild laxatives, a nutritious but mild diet, and the total proscription of spirituous stimuli, while the Indian form of the disease seldom yields to any other remedy but mercury. The great object in the treatment of chronic tropical hepatitis is to prevent suppurations of the organ, for if once they take place our hopes of cure must be slender indeed. To obviate this dreadful accident, then, we should have early recourse to local or even general bleeding, according to the urgency of the local or general symptoms, together with blisters, purgatives, and low diet. But we are not to expect that chronic Indian hepatitis of any standing will give way to these measures, however sedulously or skilfully administered. They will not restore the structure and function of the biliary organ to a sound state, and bring the abdominal secretions to a healthy appearance. 'In such cases,' says the writer we last quoted, 'the powers of mercury are alone to be trusted to, and these are in general sufficiently efficacious. The relief indeed, experienced in most cases of chronic hepatitis the moment the mercury affects the mouth, is truly surprising. The removal of all uneasy sensations from the side, the clearing up of the skin and countenance, the restoration of the natural evacuations, and in short, the removal of every complaint, but debility, evince the powers of this remedy. It is melancholy, however, to remark that unless the patient's circumstances admit of a removal from a tropical to a temperate climate, these healthy changes are seldom lasting. By remaining subjected to the same climaterial influence which produced the complaint, the patient is under the necessity of recurring from time to time to the same remedy, which like all others must lose its efficacy by repetition.' Those facts should be borne in mind by emigrants to tropical climates, for although this disease is most common in our East India possessions, it is also no uncommon disease in other warm regions of the globe. In the treatment of chronic hepatitis, it is of great importance to place the patient under such circumstances as will ensure the full and favourable action of the remedies employed. The use of wine, spirits, and all kinds of exciting food must be laid aside, and the patient must not use any thing capable of producing fever during the process of digestion. 'So long,' says Dr Stokes, 'as any kind of food or drink produces uneasiness and sensations of heat and fullness, we may be sure it will do more harm than good.' We beg especial attention to this important term of an able practical physician, which will be found exemplified in practice when the prescribed regimen has been departed from even for a single day. Indeed, the patient should swallow nothing but what tends to support the strength, without exciting the vascular or nervous systems during the process of digestion. To this we might add that ill news or unpleasant intelligence is almost as pernicious to a patient in this disease as is an overdose of some alcoholic solution. The use of active purgatives by the mouth should likewise be relinquished, and this is a point which should the more strongly be insisted upon, as in consequence of the ordinary costive state of the bowels which accompanies chronic inflammation of the liver, the patient is generally in the habit of having recourse to these temporary and hurtful remedies. The vast number of nostrums advertised under the designation of antibilious pills, is a proof of the vast extent to which this practice is carried on both by those who really labour under this disease, and the still greater number who only

imagine they do so. It will, however, be found no easy task to break the patient off this murderous habit. Mild laxatives may occasionally be given by the mouth, such as a solution of Epsom salts in an infusion of ginger, or the same salts with either the infusion of rose leaves or the infusion of senna. Mild enemas are, however, to be preferred, especially the enema of castor oil with turpentine, and an occasional dose of castor oil with a tea spoonful of oil of turpentine may be taken in a wine glass of peppermint water or peppermint tea. If one easy motion of the bowels is procured in twenty-four hours it will be sufficient. When there is considerable pain and tenderness in the region of the liver, this plan alone will not be sufficient; relays of leeches every second or third day must be applied to the region of the liver, reducing their number as directed in the treatment of the acute variety, and cupping glasses applied over the leech bites, by which means as much blood may be abstracted as is required, without annoying the patient with an oozing hemorrhage, or wet warm cloths. Piles frequently accompany this affection, and when that is the case, great relief will be derived from the application of leeches around the verge of the anus, and the patient may afterwards keep up the discharge for some time by sitting on a hip bath, and keeping up its temperature. Great care, however, should be taken to dry the parts well that were immersed in the bath with a warm, dry, and somewhat coarse towel. Some have recourse to blisters and leeches alternately to the right hypochondrium; but when this is the practice, the surface of the blister should be covered as directed in the preceding section, and the cutis ought not to be cut off, as when mercurial ointment is applied on the blistered surface. Counter-irritation by the application of the following ointment around the outskirts of the region of the liver, where neither the leeches nor blister have been applied, may be employed with advantage:—

Tartar emetic, one dram.
Croton oil, thirty drops.
Prepared hog's lard, one ounce.
Mix these intimately together on a stoneware or marble slab with a knife or spatula.

The size of a small hazel nut may be rubbed on the parts directed every night at bed-time, till a crop of pustules appear. If these pustules, somewhat resembling small pox, should prove too itchy or irritating, a mild poultice may be applied, or the parts covered with a rag thinly spread with Turner's cerate, or Spermaceti ointment.

If these measures, after a fair trial, fail in removing the troublesome symptoms, recourse may be had to mercury, which has been recommended in various forms, some ordering the mildest preparation, the mercury with chalk; others preferring the blue pill, and many the calomel, either alone, or in combination. On this subject, Dr Johnson remarks, 'a gentle and gradual introduction of mercury into the system, retarded by daily evacuations from the bowels, till it slightly affects the mouth, or at least the breath, and kept at that point for some time, forms, in numerous cases, the most effectual mode of restoring a due and healthy action to the biliary organ. As soon in general as a mercurial odour is perceived on the breath, the stools become yellow and more copious, the patient experiences an exhilaration of spirits, and food is relished and digested better. The eye and complexion soon after that clear, and animation is restored to the countenance. After keeping in this state for a longer or shorter time according to the stage of the disease, a course of opening medicines, combined with bitters and tonics, ought to be entered on, and continued for a considerable period. For this purpose, the blue pill, in two, three, or four grain doses every night, combined, or alternated with a purgative, seems to answer best without ruffling the constitution or producing much uneasiness in the bowels. Where it is not judged prudent to bring the system under the influence of mercury, and in a majority of cases it would be at least unnecessary, and in many detrimental, our plan is to enter on a course of medicine which will at once increase the biliary secretion, clear the bowels, and improve the digestion. Such a combination as the following may serve as a model for medicine calculated to effect the two first intentions:—

Compound extract of colocynth, one dram.
Calomel, fifteen grains.
Emetic tartar, two grains.
Oil of carraway seeds, five drops.
Beat intimately into a mass, and divide into twenty-four uniform pills.

One, two or three of these pills may be taken every other night.'

On this, which is a translation of Dr Johnson's prescriptions, he remarks 'of all the varied forms of purgatives which I have tried, I have not found any which is more generally applicable, or more generally useful than the above. The dose must be regulated by the effect produced. One or two stools should be procured by these pills every day, and no more.' With due deference to Dr Johnson, for whom we have long entertained the most sincere respect, we prefer using a pill composed of equal parts of the mass of the mercurial pill, and the compound extract of colocynth, formed into five grain pills, with a few drops of the oil of cloves, carraway, or fennel; and when the system requires to be brought under the influence of mercury, pursuing the plan of exhibiting either blue pill, or small doses of calomel, combined with opium or hyosciamus and antimony, till the mouth is affected, keeping the bowels gently open by the occasional use of small doses of castor oil. The importance of a knowledge of this disease to emigrants to India, &c., and

the numerous sufferers who return, has induced us to treat thus fully on the subject.

HERB BENNET AVENS, OR THE HERB BENNET, or the *Gum Verbanum* of Linnæus. This native plant, supposed to be under the patronage of St Benedict, and likewise named Avens, from the Latin word *aveo*, to rejoice, is common throughout the united kingdom, and is not without its use in domestic medicine, or even in domestic and rural economy. It is eaten by cows, goats, sheep, and swine, but horses have little partiality for the herb. The root, which is the part used, is applied in various domestic uses. A small quantity imparts to ale a fine flavour and perfume, and what is of more importance, prevents its turning sour. The leaves, while young, are used alone, or mixed with sallads, and the roots, containing a considerable portion of tannin, are employed in tanning leather, and dyeing wool of a permanent dark yellow colour; they are in addition astringent, antiseptic, and tonic. Those who cannot procure Peruvian bark, or the sulphate of quinine, may use an infusion of the roots of avens in the proportion of two drams, sliced in half a pint of wine for two hours, and taken at the commencement of the cold fit, in the dose of a small glassful every two hours. It likewise acts as a sudorific in continued fever, in the dose of ten grains of the powder, or a wine glassful of an infusion made by pouring a pint of boiling water on half an ounce of the dried root sliced, to be strained while hot. In weakness of the stomach and bowels, consequent on fevers and acute diseases, the infusion of arum is very useful. The decoction is preferred to the infusion although not so pleasant, its aromatic qualities being dissipated by boiling. It is made by boiling one ounce of the root in a pint and a half of water down to a pint, and when mixed with one third of simple syrup, or syrup of ginger, is taken in small glassfuls, say one once and a half every three hours. A simple and compound tincture, and an extract of avens, has likewise been in use, and consists of one ounce of the root of avens, to half a pound of rectified spirits, which is to be macerated for a few days in a close vessel, and strained. Of this, half an ounce is to be given three times a-day, in a glass of ginger or peppermint tea. The compound tincture of avens may be regarded as a more formidable remedy, and certainly not undeserving the attention of either the professional or domestic practitioner.

Compound Tincture of Avens.

Avens root, one ounce and a half.
Angelica, do.
Tormentil, do. of each an ounce.
Raisins, stoned, two ounces.
Brandy, or proof spirits, two pints.

Macerate for fourteen days in a warm place, frequently shaking the bottle, and then filter.

It should be observed that all the roots should be bruised and sliced. This elegant tincture is given in doses of from two drams to an ounce. The extract, which may be made as other vegetable root extracts, we have seen of great use in doses of from two to ten grains, in the form of pills, two or three times a-day.

HEREDITARY DISEASES. That children inherit from their parents a tendency to particular diseases can scarcely be denied. Nothing indeed is more common than to see the exemplification of this almost generally received opinion. Indeed, the peculiarities which distinguish individuals are no less conspicuous in their constitutions than in their countenances; and in the same manner we can no less doubt that these internal peculiarities are transmitted from parents to their offspring than the more obvious ones connected with the external form The question has often been discussed how far any disease can be regarded as hereditary? But the discussion, says Dr Bostock, 'is rather metaphysical than medical. The greater number of those affections which are usually styled hereditary, do not make their appearance until some years after birth. It has been asked, therefore, whether in this case we are to conclude that the morbid action exists during this interval, and has remained in a dormant state? It is sufficient to reply to this question that it is not essential to the doctrine of hereditary diseases to suppose the existence of this latent condition; it is only necessary to conceive a state of the body which renders it liable to have the morbid affection generated by causes which would not produce any effect upon a constitution that was not possessed of this peculiarity.' To understand the reasoning of this able physiologist on this subject, one example may suffice. It is supposed, and we think justly, that scrofula may be produced by the combined operation of poor diet, a cold and moist atmosphere, together with other circumstances which generally tend to weaken the powers of the body; but if precisely the same causes be applied to two individuals, one born of diseased, and the other of healthy parents, it is well known that the former will almost certainly be affected by the disease, while the other will probably escape. We might farther illustrate by another fact, that a child born of scrofulous or gouty parents will escape these diseases, or that disease to which his parents were subjected; but that his offspring, by coming in contact with exciting causes from which he was happily delivered, will fall victims to the disease inherited from their grand parents, and of this there are many examples. Besides the obvious peculiarities derived from parents to their offspring, which lay the foundation of or produce the tendency to disease, there are others no less obvious which cannot properly be considered as morbid, where the conformation of the body, and its powers, exhibit a specific character which displays itself

as well in the internal operations of the system, as in the effect of external agents, and exciting causes upon it, and these peculiarities have been denominated temperaments.

Much practical instruction may be derived from a knowledge of those diseases which we inherit from our parents; and a studious observance of the laws of Hygeia, the goddess of health, may protect even the most delicate constitution from being compelled to enter itself heir to the diseases as well as the estates of parents and predecessors. That none may plead ignorance of these unalterable institutes of Hygiene we here repeat them, and they are short and easily remembered, viz., temperance in eating, in drinking, in sleeping, in exercise, and in thinking. These, then, are the golden rules, and they require little comment. And that matters may be doubly sure, never offend the stomach and those organs of the body, which never fail to sympathize with it whenever it receives the least ground of offence, either by the kind or quantity of your meats and drinks; for if you do so the brain will resent the injury, the head will ache, and the temples thrill; the eyes will refuse to look with complacency, and assume a red and inflamed appearance; and even the eyelids will refuse to be closed in the usual hours of repose; the skin will be hot and irritable even in its thickest and hardiest portions, the soles of the feet and the palms of the hands, while in some instances it will vomit forth itchy and irritable eruptions and the whole nervous system will be deranged and thrown into confusion, and rebellion, affording no comfort or peace to the gormandizing offender. 2. Offend not the brain and the optical organs by refusing them their due portion of repose, or debarring them from that natural stimulus of light to which they are entitled, by enforcing them by artificial means to remain as the poisoners of sleep and darkness, for verily they and their connections will also resent the injury. Permit the muscles and the tendons to move in all the varied positions, for they delight 'to toil and be strong;' neither overload and oppress, as they are unwilling slaves, and will rebel against every tyrant and oppressor. Last, although not least, moderately, and in all due and regular hours, let the thinking faculties be duly employed. They will not, however, more than their supporters, the nervous tendons and muscles, suffer to be overloaded, and they often inflict on the oppressor and invader of their rights and privileges no less punishment than an early grave, insanity, and not unfrequently the end of a suicide. The above is a faithful preventive of those hereditary diseases to which a great portion of the human race are liable. It is a receipt found in the temple of Esculapius, and is said to be in the hand-writing of Hippocrates. Whether original or not, it is certainly valuable, and if carried into effect, we have no doubt will fully answer the merciful end for which it has been transmitted to posterity.

HIERA PICRA, or in vulgar phrase HICKERY PICKERY, OR HOLY BUTTER. This is an old and very popular medicine, and one too of some value. It is composed of various degrees of strength. We believe the old prescription was one pound of best aloes in powder, and four ounces of the powder of cannella alba, or white cannella bark, intimately mixed. Ginger, or equal parts of the powder of ginger, and the grains of paradise, are used in place of the cannella. It was formerly used as an electuary with honey, but it requires a considerable quantity of honey to cover the taste. One ounce of hiera picra, and the same quantity of Spanish juice, cut in small pieces, if infused in equal parts of spirits and water, say half a pint of each for a few days in a gentle heat, forms an excellent warm aleotic purge. See *Aloes*.

HISBISCUS ESCULENTUS. We notice this preparation for the benefit of invalids who emigrate to France, that they may give it a trial, and likewise that our druggists and others may be induced to import it into Britain, as a pleasant variety of sick diet. It is called *Allahtaim du Harem a la Sultani Bahmia*, and has been some years ago imported into France from the East. It is a powder similar in colour to *café au lait*, of very savoury taste, and of an odour *sui generis*. The plant from which it is prepared is the hisbiscus esculentus, or *sultani bahmia*, which the people of the East, and of many of the countries of the New World, commonly use for food, and which the women in the Antilles esteem as very delicious. From numerous experiments made at the hospital, St Louis, M. Brett considers this substance as particularly easy of digestion, especially in cases where there exists an extreme susceptibility following either inflammation of the stomach or bowels. M. Velpeau has made frequent use of it in persons disposed to pulmonary consumption, to any of the irritations of the chest, to rheumatism, or to inflammatory attacks of the digestive organs. Many distinguished physicians agree entirely in the above opinion, and have had frequent opportunities of appreciating its utility during convalescence. We only hope this substance or its virtues may not be overrated. If it prove a moderate-priced agreeable article of diet for the sick and convalescent, we shall hail its addition to the list of our materia alimentaria; most respectable names attest its utility.

HIP-JOINT DISEASE. This disease affects patients of all ages, though children under twelve are most generally its victims. The patient is observed to walk a little lame, and to

use the limb awkwardly, but he experiences no pain, or at least it is of a dull kind, and generally referred to other parts. Thus pain in the knee joint or ankle, are common symptoms in this complaint, and this is the more deserving of attention, as these parts have not unfrequently been made the subjects of treatment when the disease was actually situated in the hip-joint. In other cases, particularly in adults, the limb is easy only in certain positions, and cannot be moved without great suffering; there is pain in the groin, and immediately behind the greater trochanter of the thigh bone, (see Plate of Skeleton), if examination be made when the patient is thus halting, the limb will be found shrunk, wasted and lengthened, the lengthening is owing to the swelling of the parts within the joint, and also to the inclination of the pelvis towards the affected side. When the patient stands, the limb is advanced before the other, on which the weight of the trunk is principally supported; the knee is bent, and the toes alone rest on the ground, the fullness of the hip is lost, and the hip has a flattened appearance when compared with that of the healthy side. The pain is aggravated by pressure on the groin, or by forcing the head of the affected thigh bone against its socket. As the disease advances, the wasting of the limb becomes more and more remarkable, matter forms over, and in the cavity of the joint the head of the thigh bone gradually becomes absorbed by ulceration, and then there is shortening of the limb, with inversion or eversion of the toes, giving somewhat the appearances of a dislocation. Symptoms of constitutional irritation come on, succeeded by hectic fever and its usual train of symptoms.

The treatment should never be trusted to the domestic practitioner unless other aid cannot be had. It consists in the first or inflammatory stage of local bleeding by means of leeches or cupping, followed by warm fomentations, and afterwards by blisters and tartrate of antimony ointment; the limb should be laid in an easy position, slightly bent, and so retained perfectly quiet. Should this not arrest its progress, recourse must be had to counter irritation, by means of setons, the moxa, or actual cautery applied in the neighbourhood of the joint; and if abscesses form they must be opened early; the patient's health must be supported by nourishing diet, and sometimes a due proportion of wine; the constitutional treatment recommended in scrofula should be adopted.

HOG'S LARD, or prepared hog's lard, is directed by the London college to be cut in pieces, and melted with a moderate heat, and strained through flannel while hot with pressure or expression. The Dublin college orders it to be done by straining it through linen. There is a much better plan than either for families to pursue who feed and kill hogs for their own use. The side, or best lard, should be freed from the skins, cut into small pieces, and put into a large stone bason over a pot of boiling water, and the water kept boiling till the lard is melted; during the process it may be frequently pressed with a wooden spoon or the end of a roller, and carefully poured off while hot. The melted lard thus produced will be richer, have a finer flavour, and keep longer without salt than the lard melted in a metal pot, in immediate contact with the fire. It should therefore be kept for making ointments, which are applied to tender surfaces such as blisters, burns, and scalds, and for the finer processes of cookery. The remainder of the remelted lard may then be done in a clean metal pot over a slow fire, and a certain portion of salt added while it is hot. This will be very good, but not equal to the former, as the other, if kept cool, will be good for some weeks without salt.

Families who buy lard in bladders if it is not perfectly fresh, should melt it in boiling water over steam, and allowing it to cool, take off the lard from the top of the water. The salt, if there has been any, will be dissolved in the water, and therefore the lard will require a second salting. Hog's lard is a most useful article in medicine and surgery, as well as cookery and domestic economy; and these uses will be found pointed out in the course of this work. As an article of diet, it has been used as a substitute for butter, and although not so agreeable to most stomachs as butter, may nevertheless be used in moderation by the active and laborious.

HOME FEVER, or *Nostalgia*. We have made several indirect allusions to this disease in some of our articles, especially on *Hectic*, to which we refer, as in these we allude to the case of the poor oppressed negro, who feels happy in the belief he will revisit his native land and his kindred after death; and likewise to that of the Swiss, who feel so ardent a desire to visit the romantic and mountainous scenes of their childhood; that in both cases disease follows, and a wasting hectic fever is the consequence. This disease, in a greater or lesser degree, affects most men, both savage and civilized, at certain periods of their lives, but there is perhaps none of the natives of the three kingdoms so very liable to its attacks as the Irish, who often make considerable sacrifices, in order that they may gratify the strong desire they frequently feel of visiting the place of their birth. They will live on the most economical system, and even submit to some starvation, to save funds for this purpose; aye, and it may be to visit friends too who have not a decent bed to offer them for the night, or any thing better to eat than a potatoe and salt, or perchance a herring; and happily steam navigation now

affords many of them the means of gratifying this amiable propensity. The mode of *treatment* pursued by the slaveholders, is to threaten the poor uneducated slave with decapitation after death, knowing that he believes such an operation would prevent him visiting Africa. In other cases, especially when the desire can not be gratified, it requires often great skill and address to effect a cure. Medical and moral means conjoined must be applied, and a deep knowledge of human nature, and the workings of the human mind, are requisite qualifications for the physician who would succeed in curing this disease, which very often terminates in incurable hectic. It is greatly aggravated by reciting tales of the patient's home, playing the music, or talking or reading of the beauties, real or supposed, of his country, and the renown of her heroes, poets, or philosophers. Indeed, none but a truly feeling, affectionate, philanthropic, and Christian physician need attempt a cure.

HONEY. This wonderfully prepared substance is supposed to consist of sugar, mucilage, and an acid. Honey is used both as an article of diet and as a medicine, and its qualities are very various, according to the kind of flowers that abound in the neighbourhood of the bee-hives; even in the same hive may be found honey of different qualities, obtained at different seasons of the year. This last circumstance is proved beyond doubt, by the industrious but oppressed Poles, who devote great attention to the proceedings of the industrious bee. In Poland honey is divided into three classes or kinds, differing in quality, appearance, and price, namely, *lipiec*, *leszny*, and *stepowey prasznymerd*.

The first, or *lipiec*, is gathered by the bees from the lime-tree alone, and is considered on the continent most valuable, not only for the superiority of its flavour, but also for the estimation in which it is held as an arcanum in pulmonary complaints, containing very little wax and being consequently less heating in its nature; it is as white as milk, and is only to be met with in the lime forests in the neighbourhood of the town of Kinow in Lithuania. The great demand for this honey occasions it to bear a high price, insomuch that a small barrel containing hardly one pound's weight, has been known to sell for two ducats on the spot. This species of the lime-tree is peculiar to the province of Lithuania, and is quite different from all the rest of the genus Tilia, and is called *Kaminna lipsa*, or stone-lime.

The next kind of honey, the *leszny*, which is inferior in a great degree to the preceding, being only for the common mead, is that of the pine forests, the inhabitants of which make apertures in the pine trees for the bees to hive in. The wax is also inferior, and more difficult to bleach.

The *stepowey prasznymerd*, is the third class of honey, from the meadows and places where there is abundance of perennial plants and hardly any wood. The province of Ukraine produces the very best honey and also the very best wax. Honey and wax having always a great demand all over Europe, and even Turkey, some of the peasants have from four to five hundred ule or logs of wood in their bee gardens, which are called *paseika*, or bee-hives; these logs are about six feet high, hollowed out in the middle, commonly of birch wood, which the bees prefer. The hollow is about five feet in length; several lamina of thin boards are nailed before the aperture, and but a small hole left in the middle of one of them for the entrance of the bees. As the bees are often capricious at the beginning of their work, frequently commencing it at the front rather than the back, the peasants cover the aperture with a number of these thin boards instead of one entire board, for fear of disturbing them should they have begun their work at the front. It may appear extraordinary, but it is nevertheless true, that in some favourable seasons, this aperture of five feet in length and a foot wide, is full before August, and the peasants are obliged to take the produce before the usual time, with a view of giving the bees room to continue their work, so favourable occasionally is the honey harvest. We regret that our limits prevent us from entering at length on this branch of rural economy, so much neglected in Britain and Ireland as practised in Poland; we have, however, great pleasure in referring our readers to that excellent work, Loudon's Encyclopedia of Agriculture, where they will find much interesting information on the subject. As a further proof that the quality of honey is greatly influenced by the flowers from which it is collected, we may allude to the honey of *Trebezond*. Mr Abbot, in an account of this famous honey, spoken of by Xenophon as having produced the effects of temporary madness, or rather drunkenness on the whole army who ate of it, without causing any serious consequences, says, 'It is supposed to be from the flower of the Azalea Pontica that the bees extract this honey, that plant growing in abundance in this part of the country, and its blossoms emitting the most exquisite odour. The effect that it has on those who eat it, is, as I have myself witnessed, precisely that which Xenophon describes. When taken in small quantity it causes violent headache and vomiting, and the unhappy individual who swallows it resembles as much as possible a tipsy man, and a large dose will completely deprive him of all his senses.'

Good honey is known by its peculiar saccharine and aromatic smell, and its white or yellowish and grained consistence. It is frequently adulterated with sugar and flour, which an

attentive observer will easily discover. Pure honey is an excellent article of diet, and acts as a gentle aperient, keeping the bowels in an easy state. In some constitutions it occasions acidity or heartburn and flatulence, but these most generally arise from eating it in excessive quantities. It has been particularly recommended to the asthmatic and those subject to gravelly affections. In the former it may not only be eaten in place of butter, but the coffee of the asthmatic should be sweetened with it, and in every other case substitute it for sugar. Experience will guide individuals in its use, but its high price renders it a less common article of diet than it should otherwise be. Honey is less employed in medicine than formerly; instructions are, however, given in the pharmacopeias for the purification of honey, and several preparations have the name of honeys or oxymels applied to them, as the honey of borax, the oxymel of squills, &c., either of which terms indicating that honey enters into the composition.

Honey is clarified by melting it in a water-bath, and then taking off the scum that rises to the top. For example, let the honey requiring clarification be put in a common stoneware bason, and place the bason and honey on the top of a pot of boiling water, keeping up the temperature of the water by placing the pot on a slow fire, when the honey will melt and the impurities rise to the top.

Oxymel of honey or simple oxymel, is prepared by mixing one pound of honey and one pint of vinegar, and boiling them in glass or stoneware vessels over a slow fire, skimming off the impurities, if any, as they arise. This process may be conducted in the same way as the clarification, only the water in the pot will require to be kept more constantly boiling. This preparation of honey and vinegar possesses aperient and expectorant virtues, and is given with these intentions in humoral asthma and other diseases of the chest, and in tickling coughs. It is likewise an excellent and pleasant gargle for sore throats when diluted with equal parts of water.

The honey or oxymel of squills is prepared in the same way as the preceding, a pound and a half of honey and one pint of the vinegar of squills being boiled together till of the consistence of thick syrup. This is a medicine of greater efficacy than the preceding in affections of the chest, asthmatic cough, and hooping cough. It is taken in doses of from a tea to a table-spoonful. Few will, however, bear the latter dose, as it is apt to cause vomiting. It may be given in peppermint or cinnamon water, and is frequently used not only to sweeten, but to add to the efficacy of cough mixtures.

The honey of roses is prepared by first infusing four ounces of dried red rose-leaves in three pints of boiling water for six hours, and then straining the infusion. To this strained infusion five pounds of honey are to be added, and the mixture to be boiled over the steam of boiling water as in the preceding, till it is of the proper consistence. This is an elegant medicine, and when mixed with vinegar forms an excellent gargle in sore throat. It may be given children for cough in doses of a tea-spoonful or two occasionally, and is a very good medicine for covering the taste of sulphate of quinine or peruvian bark. For example, the following is a most agreeable and at the same time elegant tonic draught: Sulphate of quinine, three or four grains, drop on it in a tea-cup or large wine-glass twenty drops of elixir of vitriol, then add three drams of honey of roses, and half or even a whole gill of cold water. The most delicate and fastidious stomach cannot refuse this, and when quinine is given infants it may be given in this way, in any proportions, even to the sixteenth of a grain.

Honey of borax is prepared by mixing one dram of finely powdered borax with one ounce of honey, by rubbing them together in a tea-cup or small glass or stone mortar till thoroughly incorporated. This is applied in ulcers of the mouth and tongue especially in children. By rubbing the honey of borax with water, it likewise forms a gargle for adults in such cases. It should be observed, that unless the honey is very pure, it should always be clarified when used for the preceding purposes.

The popularity of honey as a pectoral, induced the eccentric Sir John Hill to vend a balsam of honey for the cure of coughs and consumptions, and later quacks have followed his example.

HOOPING-COUGH, CHINCOUGH, KINKCOUGH, and in Scotland KINK-HOAST, have all been employed indiscriminately, and are to be understood in the following sketch; the chin being considered by some writers as only a vulgar corruption of the Saxon term Kind, a child, implying that the attacks of the disease are exclusively confined to childhood; which, however, is not always, although most frequently the case.

General description. This disease, in its simplest form ordinarily commences with all the signs of a common cold. After a period variable in duration, generally from ten to twelve days, its characteristic phenomenon, the hoop, or as some term it the whoop, is developed. If the patient be previously free from disease, or morbid predisposition, and the season of the year favourable, the affection will interfere but little with his occupations or amusements. In the intervals between the paroxysms of the cough, he complains only of occasional headache or drowsiness, and exhibits no symptoms except slight prominence and heaviness of the eye. The kink, or paroxysm of the cough, if long and violent, is frequently followed by ejection of the

contents of the stomach, and sometimes by a gush of blood from the nostrils. Both these modes of evacuation, viz., the vomiting and discharge of blood, especially the latter, are often productive of signal relief, (and affords a most convincing proof of the influence of the brain on the respiratory organs in hooping-cough, by the discharge moderating the congestion of that organ). At this period there is neither febrile heat nor thirst, and except during the fit of kinking, the pulse is not quickened. The bowels usually become torpid or costive, and the secretion of urine scanty. The number of paroxysms occurring during a day, varies much in different cases, according to the severity of the disease, and the violence of each is diminished in proportion to the freeness of the expectoration or discharge of blood from the nostrils. We have frequently seen vaccination, in cases where the patient had not been previously vaccinated, mitigate, and even remove simple hooping cough. The effect was apparent as soon as the cow pock had affected the system. This, therefore, is always deserving a trial.

If the disease be not exasperated by any act of imprudence, or bad treatment, no interference of art will be required. After having run a certain course, it will spontaneously subside. In the children of the prudent, careful, and more opulent, the period of recovery is often accelerated by the administration of a gentle emetic from the first appearance of the whoop, and the application of a Burgundy pitch plaster to the back of the neck, or by removal to a warmer or purer atmosphere. Although the disease may in this form terminate in three weeks, or about that period, it may return and assume its usual form, and kink after it has ceased for some weeks, if the patient catch cold or remove into a less congenial climate.

Approach of dangerous symptoms. Hooping cough, however, does not always terminate in this manner. When the patient possesses an irritable or delicate constitution, or evinces any marked predisposition to disease, when the situation where the patient resides, or the season at which the attack commences is unusually damp or cold and variable, and sufficient precaution is not employed to protect the young subjects from its violence or vicissitudes, the disease will often become complicated with, or converted into other morbid or diseased affections. Of such complications, the principal are active inflammation of the air passages, windpipe or lungs, and congestive or acute diseases of the brain. All these diseased actions are in general accompanied by fever, not purely inflammatory, but of a low type, and consequently marked in their progress, and close by the usual signs of extreme debility and exhaustion. The progress of simple hooping cough we have already explained. We will now copy Dr Johnson's arrangement, accompanied by our own practical observations, premising that until within the last fifteen years no physician could approach a patient in hooping cough without a humiliating sense of timidity and indecision, when one or more of the diagnostic signs of diseased or deranged functions, especially of the lungs or pulmonary organs, and their appendages, or of the brain, or cerebral mass, and its coverings, had made their appearance. Dr Johnson's division is as follows: 1. Simple hooping cough, which we have already described, or which is familiar to every ordinary observer. 2. Hooping cough complicated with bronchitis, or peripneumony, or in other words, with affections of the windpipe and lungs, with their membranes and appendages. 3. Hooping cough complicated with disordered bowels, or infantile remittent fever. 4. Hooping cough complicated with convulsions or hydrocephalus. Of simple hooping-cough we have already given a general description, and will only add that no one could possibly discover, no, not even a physician, by seeing a child in the simple or mild form of the disease, that he was labouring under hooping cough, or any other complaint, unless the patient was seized with a kink in his presence; Then the little sufferer's lesson or play would be suddenly relinquished, he would rush if possible to the open air, the hoop would tell the nature of the fit, and expectoration or vomiting, and it might be a slight discharge of blood from the nose, would in a minute or two terminate the paroxysm, and the patient almost emerge from apparent suffocation into perfect health, and perhaps call for some thing to eat.

Treatment of simple hooping cough. This form, we have already stated, terminates favourably in about three weeks, with very simple means, such as a gentle emetic, a pitch plaster, and change of air. But as parents are frequently over anxious, and as this anxiety is amiable, we see no harm, in addition to these means of administering an occasional dose of a mild laxative, say every third or fourth night, and a powder composed of one dram of powder of rhubarb, and the same quantity of carbonate of soda, and twelve grains of dried powder of squills, intimately mixed in a mortar, and divided in twelve equal parts, a part given every four or five hours in jelly or honey, to a child of two years, and half the quantity to a child of one year. A liniment composed of equal parts of oil of turpentine, oil of amber, and olive oil, may be rubbed on the nape of the neck along the spine, and on the chest at bed-time, and a dose of antimonial powder, according to the age, at the same hour, mixed every third night with a dose of a laxative powder. A hare, rabbit, or cat's skin may likewise be worn, the fur side next the patient, on the chest; and where a pitch

plaster has not been applied, on the neck and shoulders. Skins prepared in this way are sold by glovers and dressers of shamoy leather, and are useful in other diseases besides hooping-cough.

2. Hooping cough complicated with affections of the wind-pipe, lungs, and their membranes and appendages. The safety of the patient chiefly depends on an early observance of the symptoms. We are warned of the occurrence of bronchitis, or inflammation of the internal membrane of the wind-pipe, by the pulse becoming quick, small, and permanently hard; the fits of coughing more frequent and more distressing, and breathing hurried even in the intervals of the paroxysms of coughing. The slightest movements or exertion, even speaking, increases the difficulty of breathing, and the lips acquire a livid hue, while there is a sense of cold felt in the extremities. As the disease progresses, the pulse and difficulty of breathing likewise increase, and extreme exhaustion or prostration of strength follows; in many cases the cough is suspended, and when it does occur, it is not accompanied by the hoop while the difficulty of expectorating the mucus is greatly increased. The respirations vary from 60° to 100° in a minute, and if after they remain at this high state for a day or thirty-six hours, they are reduced to 40° or 50°, the change may be deemed favourable. If there is no chance of reducing the bronchial inflammation, all the preceding symptoms become still more severe, especially the breathing more hurried and laboured, the wheezing increases, prostration succeds, the cough ceases, the pulse is imperceptible at the extremities, and cold and death close the scene.

Treatment of the preceding complications. The mode of procedure we have already recommended in the simple form of the disease, such as the frequent use of gentle emetics and expectorants with purgatives, and applications to the nape of the neck and chest, will do much to prevent the disease running to the fatal crisis we have above described, and if to these we add bleeding, especially by leeches applied to the chest and throat, allowing the bites to bleed freely, by fomenting the part with warm water after the leeches have been removed, we shall have done almost every thing that domestic treatment can effect for the prevention or removal of inflammation of the bronchiæ and air cells. The warm bath, too, is an excellent auxiliary, and bathing the feet two or three times a day. General blood-letting with the lancet will frequently disappoint us in its results with young patients. The powders composed of squill, rhubarb, and soda, and the laxative powder, as before recommended, will often afford relief. Blistering should be resorted to with caution, as severe stranguary is frequently the consequence; but the tartar emetic ointment may be applied to the chest and spine, or nape of the neck, the size of a nutmeg, at each rubbing, till a crop of pustules rise on the parts. If leeches have been previously applied, avoid touching the wounds with the ointment. In this complicated form, prussic acid has been recommended by no less an authority than Dr A. T. Thomson of the London university, who designates it as the practitioner's sheet anchor; but in a work on Domestic Medicine we would not consider ourselves justified in recommending such a powerful medicine, although in the hands of a skilful practitioner, we have no doubt it would in many cases effect great good, and our own experience fully justifies us in this assertion. Iceland moss, or Carrigen moss jelly, and well boiled thin sowens, or flummery, may be used as articles of diet, and decoctions or infusions of horehound, in the proportion of one ounce of the dried herb to an English pint of boiling water sweetened with sugar candy, and given in doses of a small wine glassful three or four times a day. Or a decoction of colt's foot, or tussilago flowers, in the same proportion, viz., an ounce to a pint of water, and allowing them to boil for fifteen or twenty minutes, and ten minutes before taking the decoction off the fire, two ounces of candy sugar are to be added, continuing the boiling till the sugar is dissolved. The liquor is then to be strained through a cloth, and used in the same doses and manner as the horehound tea. Indeed, in every stage and state of the disease, the above articles of diet and drink may be used with advantage as excellent expectorants, although little regarded in modern practice.

3. Hooping cough complicated with disordered bowels, or infantile remittent fever. In this complication the patient breathes heavily, the tongue is foul, the belly tumefied, and the stools fœtid and unnatural. Although this complication is by no means so difficult to subdue as the last, still the symptoms may progress, and remittent fever and affections of the brain follow, unless prompt measures be resorted to.

Treatment of preceding complication. When these symptoms coexist we are to use the purgative plan recommended for correcting the state of the bowels and digestive organs. A dose of the powder of chalk with mercury, according to the age of the patient, may be given every night at bed-time, and a dose of equal parts of the powder of rhubarb and sulphate of potash, intimately ground together, every morning; or a two or three or even a four grain blue pill at bed-time, and a dose of the compound powder of jalap, or of senna tea, or a dose of castor oil in the morning. Care must be taken not to carry the purgative system too far, and to be guided by the appearance of the stools, which will soon assume a natural colour and smell, if the medicine acts favourably. The abdomen

and stomach may be rubbed every night with camphor ointment before a fire, and covered with two or three folds of flannel. When the symptoms disappear, small doses of the sulphate of quinine at proper intervals, say three times a day, from one grain to three grains will complete the cure.

4. Hooping cough complicated with convulsions or hydrocephalus. Except in very young children during the period of teething, these are complications that would never exist if the treatment detailed in the last were followed up with even ordinary energy. Very young children, during teething, are sometimes months before the teeth make their appearance, frequently seized with convulsions, whether the hooping cough be present or not; but the complication of the two always renders the case more violent and dangerous, as by the paroxysm of the kink, interruption is given to the free return of the blood from the head, and the child being more liable to convulsions than at any other period of their lives, it sometimes happens that children are carried off in these fits. By observing whether the kinks become suddenly increased in violence, and the thumbs are drawn into the palms of the hands during the fit of coughing, while there is no laborious breathing, or the symptoms already described, to account for the increase of cough in a child from seven months to two years of age, we may apprehend convulsions. It is not easy to ascertain whether in these cases the convulsions depend upon disease in the head, although rules have been laid down for ascertaining this point, but they are far from being satisfactory. If the convulsions are confined to one side of the body, some say we may then confidently expect hydrocephalus. Our own experience, and it has not been inconsiderable in the treatment of infantile diseases, has, however, confirmed us in opinion that these nice drawn distinctions have been multiplied without good reason, and seldom lead to any good practical result, except it be to the pretended observer himself, who often passes for an acute discerning practitioner with the public, and what is more extraordinary, sometimes with the profession.

Treatment of this complication. When a child is seized with hooping-cough during dentition or teething, and convulsions make their appearance, we proceed just as if no hooping-cough was present, that is to say, if a tooth, or teeth, are tardy in making their way through the gum, we make an incision, and by the use of mild laxatives, remove the irritation, endeavouring to mitigate the cough by mild expectorants, such as small and frequently repeated doses of syrup of squills, and of the decoction of tussilago flowers, with sugar candy, as previously directed; for young children a tea spoonful or two may be given every hour, or every other hour, that is, for children from seven to twelve months; from one year to two, double that quantity may be given. When the convulsions are violent, and blood is discharged from the nostrils during the kink, two leeches may be applied to each temple, and every night at bedtime a scruple of gum assafœtida, dissolved in one ounce of warm water and strained, and five drops of laudanum, and the same quantity of tincture of henbane, or hyosciamus, are to be used as an enema. If this enema is retained, it will often lessen the fits and kinks one half in number. As a counter-irritant, a Burgundy pitch plaster should be applied to the nape of the neck, and another to the chest, as far up as possible. Should these means fail in arresting the disease, or rather diseases, for a child of from seven to twelve months, the following formula will often prove beneficial:

Ca'omel, six grains.
Powder of squills, and powder of foxglove, each two grains.
White, or refined sugar, twelve grains.
Mix intimately in a mortar, and divide into six equal doses.

One of these to be given every night at bedtime, at the same time continuing the enema; and should the bowels continue torpid, or costive, with unnatural stools, six grains of powder of rhubarb may be given every morning. When the child is on the breast, and these means fail of affording relief or effecting a cure, the state of the nurse's health ought to be inquired into, and her diet, if it has been irregular or improper, changed for a more suitable aliment, and removal of the patient to another climate, even a short distance, recommended. A nurse who menstruates during suckling, or has any approach or feeling towards that evacuation, is a very improper person to suckle a convulsive or hydrocephalic child, whether these diseases be complicated with hooping cough or not.

Prognosis and concluding remarks. Hooping cough is always a dangerous disease in the young phthisical, scrofulous, or nervous infant, especially to the infants of unhealthy and intemperate nurses, and doubly dangerous before teething is completed. Those who are not seized with the disease in infancy, have a greater chance of recovery than the young, and the longer and less frequent the kinks, the more speedy is the recovery.

The late Dr Robert Watt had the honour of first drawing aside a part of the vail that hung over the pathology and treatment of this complaint, having lost two of his own children in the disease, and subjected the bodies to a minute anatomical or *post mortem* examination. Much, however, yet remains to be known, although many interesting discoveries have been made, since the lamented death of this eminent practitioner and teacher of medicine.

HOP, or *Humulus Lupulus.* The hop is a well known plant, employed to a great extent by brewers for the preservation of ales and beers.

It is likewise prescribed as a medicine; it is only the floral leaf or bractia of the plant that is used. Hops, or rather the floral leaf of the plant, have a bitter taste, less ungrateful than most of the other strong bitters accompanied with some degree of warmth, and aromatic bitter with a considerable share of an intoxicating property. The hop flower exhales a considerable part of its narcotic or intoxicating property in drying; hence, those who sleep in hop houses are with difficulty aroused, and a pillow filled with hops frequently procures sleep. Our late king, George III., when sleep had fled, procured a sound repose on a hop pillow when other means had failed. By simple infusion, the aroma is extracted, by short boiling the bitter, and by long continued boiling the aroma is dissipated, and the astringency predominates. The aroma was supposed to reside in a volatile oil, and the astringency in a species of tannin, for sulphate of iron is blackened by it. It also contains a resin from which it has its bitterness, and a nauseous mucilaginous extractive which alcohol precipitates from the infusion. Mr Joes of New York has, however, discovered the substance upon which the efficacy of hops depends, which he has denominated *Lupuline*, and which is in the form of small shining yellowish grains covering the base of the scales in the hop. It is very bitter, and there is no doubt contains the active properties of the hop. Hops have been long regarded as having strong lithontriptic powers, or in other words, the property of relieving calculi, or gravel; but we think their claim to this virtue is questionable. They are certainly an excellent aromatic bitter, and in the form of tincture we have seen them do good in the rheumatic affections of the aged, when attended with indigestion. One or two drams of the tincture or even half an ounce, taken at bed-time with a glass of warm ale, half an hour after, will often procure sound sleep without any of the unpleasant effects of opiates. But as the medical effects of the hop will be found more fully detailed in other articles, we shall here only refer to its use in domestic economy, and annex the formula for the tincture. The young shoots are eaten in the spring as asparagus, under the name of hoptops, and possess diuretic and antiscorbutic properties. A decoction of the roots has been used as a substitute for sarsaparilla. A yellow dye may be procured from the plant, and from the stalks cloth may be made. They are treated in the same manner as flax, but require to be longer macerated in water before the woody part can be separated. The tincture of hops is prepared by macerating for ten or twelve days five ounces of hops in two pints of proof spirits, and then strain and filter.

In its natural form, the hop is so extremely light and bulky as to absorb and retain a great deal of the spirit employed to extract a tincture from it, even when subjected to much compression; but Dr Duncan recommends it to be rubbed between the hands to a sufficiently fine powder, from which the tincture may be prepared without much loss, and this is certainly the best mode of proceeding. It appears to us from considerable experience that the anodyne quality of hops is greatly increased by being combined with other narcotics, and we have accordingly prescribed the tincture in combination with the tinctures of henbane, lettuce opium, and in some cases foxglove, with advantage. As we have already stated, we have used the tincture to the extent of half an ounce at bed-time, and during the day, in doses of from one to two drams, in cases of the rheumatic gout of the aged. An ointment has been prepared from the hop, but we think it a very useless application in those cases for which it has been recommended.

HOREHOUND, or *Marubium Vulgare*. This well known and favourite herb is an indigenous plant, but cultivated in gardens, and on a great scale by some herbalists. It has an aromatic, but not very agreeable odour, with a bitterish taste, penetrating, diffusive, and durable in the mouth; the smell, however, is evidently improved by drying. Horehound possesses stimulant, tonic, and in large doses, laxative properties, although there would appear to be present some astringent matter, from the fact that a cold watery infusion produces an olive green colour by the admixture of ferruginous salts. Its bitter depends on the presence of extractive, and its aromatic on a volatile oil. That horehound possesses some share of medicinal power may be inferred from its sensible qualities, but its virtues do not yet appear to have been clearly ascertained. It was formerly employed in hepatic and uterine diseases, and although now rarely used by the faculty, it is nevertheless a standing favourite with the majority of the working classes in chronic or pulmonary complaints, asthmatic affections, and especially in catarrhal attacks. It is employed in infusion, in the strength of from half an ounce to an ounce, or even two or three ounces to the pint of boiling water, and this infusion is made into syrup by afterwards dissolving a pound of sugar in the pint of infusion, and for this purpose candy sugar is preferred. This is used as a cough medicine, a spoonful or two being taken occasionally. A strong decoction or infusion is likewise formed into a confection called horehound candy, much used as a pectoral medicine in coughs; much, however, that is sold under this name never touches horehound or its infusion. The best way of confecting the horehound would be to form it into cakes or lozenges by reducing the herb to fine powder, and mix-

ing it with gum and sugar. The powder is a very agreeable stomachic and tonic, and may be taken in doses of half a dram or a dram made into an electuary with the syrup. As a domestic medicine easily cultivated, horehound deserves greater attention from the faculty than it has yet met with, and we are much mistaken, if when properly administered, it will not be found a valuable addition to our diaphoretics, as we have frequently seen a few small cups of warm horehound tea produce an agreeable general perspiration, when other more celebrated medicines have failed, and it is doubtless to this latter quality that it has so long continued to maintain its reputation in the cure of common colds.

Ford's balsam of horehound is nothing more than the common paragoric elixir, with very little addition or alteration, although a fortune has been realized by its sale.

HORSE RADISH, or *Cochleariæ Armoraciæ*. The root of this perennial plant, which is the part used, has a biting acrid sweetish taste, and a pungent odour; but all these qualities it loses by drying, becoming sweetish, and afterwards almost insipid. It has long been a favourite domestic medicine in scurvy, rheumatism, dropsy, and locally as a gargle in hoarseness. It is occasionally found growing about river sides, and in moist situations; but is generally cultivated in gardens, as well for culinary as for medical purposes. Its virtues are extracted both by water and spirit, and an infusion and spirit are ordered by the Dublin and London colleges. Its virtues may be preserved by burying the roots in sand or earth, and it is certainly a useful article of sea store; the roots are best when dug up in the latter end of autumn. The compound infusion is ordered to be prepared by taking one ounce of the sliced and bruised root, and the same quantity of bruised white mustard seed, and macerating or infusing in a pint of boiling water for two hours, straining, and then adding one ounce of the compound spirit of horse radish. This infusion has rather a mawkish acrid taste, with scarcely any odour, but is stimulant and diuretic, and when sweetened is used in doses of from half a wine glassful to a whole one, or even more, three or four times a day, in cases of palsy, scurvy, chronic rheumatism, and dropsies, especially those dropsical swellings which succeed scarlatina and other fevers.

The spirit ordered by the two colleges already named, has certainly very little claim to antiscorbutic virtues, but as it possesses acrid, aromatic, and tonic qualities, and as even the name of horse radish spirit tends to elevate the sluggish spirits of a person suffering from scurvy at sea, a little of it as an article of sea stock may do no harm:—

Take of fresh horse radish root cut and bruised;
—— Dried outer rind of Seville orange peel, each one pound.
—— Fresh herb of garden scurvy grass, two pounds.
—— Bruised nutmegs, half an ounce.
—— Proof spirit and water, of each one gallon.
Macerate for twenty-four hours, and distil with a slow fire, one gallon.

The London college omits the garden scurvy grass. This spirit prepared according to these directions cannot be procured in the druggist's shops, and if wanted must be distilled at home, or procured from one of the established or incorporated apothecaries' halls; any respectable chemist will, however, prepare it according to order, and it is certainly a useful stimulant in dropsical cases, when used in conjunction with diuretics. Horse radish was a favourite medicine with the great Dr Cullen, who remarks that 'externally applied it readily inflames the skin, and proves a rubifacient that may be employed with advantage in palsy and rheumatism, and if its application be long continued it produces blisters.' This effect it produces by being grated or scraped fine, and applied in a thin linen bag, or in a linen rag to the part affected; and is a good substitute for mustard. Taken internally, as we have already observed, it may relieve hoarseness by acting on the fauces, or used as a gargle, and for this purpose the compound infusion may be made into a syrup by the addition of sugar or honey, and swallowed slowly. The infusion, when mixed with equal parts of warm water acts as a useful emetic, and may either be employed alone or to assist other emetics. Bergius has given us a particular method of exhibiting this root, which is, by cutting it down without bruising into small pieces, and these, if swallowed without chewing, may be taken down in large quantities, to that of a table spoonful, taken in the morning for a month together; this root has, he alleges, been extremely useful in arthretic or gouty cases, but which Dr Cullen rather supposes to be cases of rheumatism. The root, used in this manner, appears to give out its volatile qualities without inflaming. The matter of horse radish, like the same matter of other plants of the same class, carried into the blood vessels, passes readily into the kidneys, proving a powerful diuretic, and is therefore useful in dropsy; and we need not say that in this manner, by promoting both urine and perspiration, it has been long known as one of the most powerful antiscorbutics. It may be used at sea where fresh animal food is a rarity, scraped down and eaten as a condiment along with beef or pork, or on the top of bread and butter in the form of a sandwich; no more, however, should be scraped than is to be immediately used, as its volatile oil soon exhales. No valuable ground need be lost in the cultivation of this useful vegetable, as it may grow on ditch banks, or road sides.

Where it is necessary to produce a speedy counteraction as in cases of inflammation of the

stomach, pleura, or abdomen, the horse radish scraped down and mixed with equal parts of powder of mustard, or the bruised seed, and vinegar and oat meal, forms a most valuable application over the part affected, and where mustard cannot be had may be applied alone. It is particularly valuable in cases of cholera as a counter-irritant.

HORSE TAIL, or *Hippuris Vulgaris*, MARE'S TAIL. This has long been a favourite remedy with country people in many of our rural districts. It certainly possesses mild astringent and tonic powers, and is used in the form of infusion or decoction in diarrhæas and hæmorrhages. It is certainly a safe if not so speedy and effectual a remedy as might be procured.

HORTICULTURE; the most ancient and useful of all the arts of life. The practice of horticulture, even on a small scale, never fails to impart health, comfort, and rational enjoyment to the horticulturist. An industrious horticulturist is, indeed, a public blessing, and contributes in no ordinary degree to the pleasure and enjoyment of all classes of society. Were he never to sell one of the vegetables raised by his own industry but consume them in his own family, he imparts a charm to our road sides, and our hedge banks, which they would not otherwise possess; and who on seeing a neat cottage and its snug little kitchen and flower garden, and even orchard, in the space of not more than the eighth part, or even the sixteenth of an acre, is not the better of the sight. Our artificial mode of living has, however, thinned our honest peasantry, their country's pride; but we hope the day is not far distant when every industrious man who delights in horticulture, will find a spot in which he can contribute to the preservation of his own health and that of his family, and delight the eye of the traveller with scenes of rural felicity. Little study or instruction is required for the cultivation of a few falls or perches of ground, and no measure would tend more to the advancement of the physical, intellectual, and we will add moral and religious character of our mechanics, than the allotment of as much ground even within the distance of one mile of a city, as would afford him the pleasure of being a practical horticulturist.

HOUND'S TOOTH, or DOG'S GRASS, or COUCH GRASS, the *Gramen Caninum*, or *Triticum Repens* of Linnæus. The roots of this grass, too familiar to the farmer, are agreeably sweet, and possess aperient properties, and the expressed juice was at one time very generally used. There is another variety, the *Gramen Egyptiacum*, or Egyptian cock's foot grass, or grass of the cross, the roots and sprouts of which possess the same virtues as those of the hound's tooth, and are serviceable in the earlier stages of dropsy. They are supposed to correct the bad smell of the breath, and to relieve nephritic disorders and colics. There is no doubt that the roots, and even stems, of the dog's grass are emollient and diuretic, and that the infusion or decoction is employed with advantage as a drink in inflammatory disorders, especially of the urinary organs. From half an ounce to two ounces, is boiled in a quart of water, and sweetened with extract of liquorice. The common ptisan of the Parisian hospitals is made by boiling one ounce of the roots of the dog's grass, and two drams of fresh liquorice root sliced, in two pints of water to a pint and a half and strained while hot. A cupful is taken occasionally, as a pleasant refreshing drink. A strong infusion or decoction of the quick grass, so great a pest to farmers in some soils, may be used as a diet drink, in the spring months, with great advantage by those who have any scorbutic taint in the constitution, or eruptions on the skin. It is very agreeable, and requires no sugar; but should be prepared daily, one pint being used in the course of every day. A pint and a half of boiling water poured on four ounces of the clean roots cut small, at bedtime, will be ready the following morning. A gallon of this preparation, which costs nothing but the trouble, is worth all the antiscorbutic drops in the kingdom.

HYDROCELE, or WATERY RUPTURE, as it is sometimes termed, is a collection of serous fluid in the tunica vaginalis, or serous sac, which forms one of the coverings of the testicle. The swelling is of a pear shape, and comes on gradually, commencing below; this, together with the feel and transparency of the tumor, show its nature, and distinguish it from rupture, the swelling often attains a very great size. The testicle can be felt behind the collected fluid.

The treatment is either palliative or radical. The former is used in cases where there exists any irritability or predisposition to disease of the testicle itself, and consists in simply drawing off the fluid by means of a trocar and canula, or even a common lancet, so as to give relief from the weight and inconvenience caused by the swelling. The radical cure consists in drawing off the fluid with a trocar and canula, leaving in the canula after the water has escaped, injecting port wine, or some other stimulating fluid, so as to excite inflammation and adhesion of the walls of the sac, thus preventing any future collection. But simple as this last operation is in the hands of a good surgeon, it is one which should never be attempted by the non-professionalist lest, improperly executed, it might give rise to dangerous consequences.

HYDROCEPHALUS, or WATER in the HEAD, sometimes called dropsy of the brain. This disease comes on with lassitude, fever, and headache, slow pulse, pupils of the eye

dilated, a drowsy or soporific state supervenes, and these go on until an almost complete apoplectic state exists. This disease is sometimes denominated acute hydrocephalus, and is very common and fatal, generally occurring between the time of teething, and the third or fourth year, although sometimes it appears later. It is very insidious and slow in its progress, and the first symptoms are irritability, languor, and drowsiness, want of appetite, and chilliness, skin dry and hot towards the evening, and the pulse accelerated. These may continue for a day or two; there will be then thirst and pain in the forehead, and on the top of the head, and if the infant be unable to speak, it will carry its hand to the top of its head, thereby evincing pain, and it screams suddenly; the breathing will be interrupted by sighing; there will be indifference to all surrounding objects. On the next night the sleep will be either quiet, or the child will start in his sleep, and awake bewildered. The pain and fever will return in the course of the next day, with nausea, vomiting, and a small pulse. In the evening there will be an increase of all these symptoms; the eyes will look wild, the bowels will be confined, there will be increased pain in the head, the urine will be scanty and high coloured, with violent pulsation in the carotid and temporal arteries, the external senses will be very acute, the pupil will contract if taken to the light, the child will start, and convulsions will come on. The symptoms denote inflammation, and generally last for some days, and even for more than a week. The sudden awakening from perfect sleep, and the screaming of the little patient, are the effects of considerable pain, and are constant precursors of the symptoms of apoplexy. After screaming, the child drops into a comatose state, and on awakening the pupil is found dilated, the sight is weakened, and the senses blunted. During the comatose state the stupor is great, and the limbs are motionless. Strabismus or squinting comes on, and the pupils of the eye are generally drawn towards the nose, the pulse becomes slow, convulsions supervene, and death follows. Sometimes these symptoms last for several days, then the fever is more acute, and the pulse more frequent and quick, the eyes bloody, there is shorter and hurried respiration, with a livid circle around the mouth, a relaxed state of the sphincter muscles, and under these circumstances death will likewise speedily take place.

In the early stage of this disease it is difficult to distinguish it from other diseases to which children are liable. Irritation of the alimentary canal from worms may produce the same symptoms very nearly as those of the acute hydrocephalus, but then there is no headache or contraction of the pupils, and the bowels are relaxed. Irritation from teething may also produce the same effects, but the bowels are then open, and there is no contraction of the pupils. When the second state of acute hydrocephalus comes on, it is easy to be distinguished. During the first stage the symptoms are those of inflammation, and during the second those of compression, or as when some substance is pressing upon or compressing the brain. The causes of this disease may be divided into remote and proximate; the proximate cause appears to be inflammation of the pia mater, or the covering membrane of the brain, followed by effusion. The remote causes are divided into predisposing and exciting; the former causes are great flow of blood into the head during teething, from feeding children too much upon animal foods, thereby causing a morbid increase of strength, and a larger quantity of blood to flow to the head. Hereditary predisposition to this disease likewise exists in children of parents of a scrofulous diathesis. Those children who are disposed to it hereditarily, are generally of a fine fair skin, large and full head and forehead, joints large, &c. Debility may also be another predisposing cause. The exciting causes of this disease are the same as those of phrenitis, or inflammation of the brain—difficult dentition, certain positions of the body, as holding the child down, and also the abuse of opiates and stimulating carminative medicines will excite and predispose to this disease.

As to the *prognosis* it is always unfavourable, and we have no good evidence of any recovery from the second stage, although we doubt not such sometimes takes place. In the first stage the danger will vary with the inflammation, and in the second with the danger of compression. Upon examining the body after death, an accumulation of water is found collected in the ventricles of the brain, varying in quantity. The water effused in this disease is generally more livid than in ascites or dropsy of the belly. When the quantity effused into the ventricles is large, the lateral and superior portions of the brain are of a pulpy consistence, the head enlarges, and chronic hydrocephalus is established. After a time the skull enlarges, projecting greatly at the centre of ossification, and the membranous divisions between the bones become very wide and stretched. When after death the scalp is removed, the bones are found very thin with membrane running across them, supposed by Dr Baillie to be the remains of unossified matter; or sometimes when during the second stage the ossification is not complete, the bones are lifted up. The most favourable prognosis in the first stage of this so fatal disease, is when the bowels are steadily acted on by medicines, when vomiting may be speedily relieved, when the remedies employed are efficacious, and when the headache pulsations of the

arteries and fever are controlable. On the contrary, it is most unfavourable if strabismus or squinting, dilatation of the pupils, coma, or convulsions, are present; when there is gnashing of the teeth, rolling of the head, paralysis of one or both sides, blindness, the pulse being very slow or rapid, no favourable opinion can be formed of the case as death is most likely speedily approaching.

In the *treatment* of this disease we must be regulated by the principles assumed respecting its proximate cause, and our great object must therefore be the removal of inflammation, and the prevention of effusion and compression. The first stage is the only one in which any thing effectual can be done, and here we must employ blood-letting, general and local, especially by leeches to the temples, a blister to the nape of the neck, and purgatives. If the child be two years of age, a good operator may take two or three ounces of blood from the jugular vein, or if leeches are not to be had, from the temporal artery; and as in this disease the bowels are very costive, three grains of calomel and the same quantity of the powder of jalap and scammony, with an enema of two ounces of infusion of senna two hours after the powder. If the child takes any thing else than whey or milk and water, barley water, or equal parts of milk and barley water, is the only food, and that only in small quantities at a time. The child may be put in a warm bath, and at the same time it is in the bath let a rag moistened with equal parts of vinegar, spirits, and cold water be kept applied to the head. The size of a marrow fat pea of mercurial ointment may be rubbed on the inside of each thigh, and at bed-time ten drops of each of the tinctures, opium, henbane, and digitalis, be rubbed over the chest and abdomen. Producing an action on the bowels is always of the greatest importance in this disease, and we have seen half a drop or one small drop of croton oil in one ounce or two of linseed tea, effect this when administered as an enema, when ten grains of calomel aided by other purgatives had failed. After the bowels have been freely opened, if there are not more favourable symptoms present, and if the mercurial ointment and calomel have produced no good effect, then two drops of the solution of muriate of mercury, (corrosive sublimate), and two drops of tincture digitalis, may be given in half an ounce of linseed tea as an enema, and repeated twice or even thrice a day, if it is not retained for at least an hour. The solution of the corrosive sublimate is made by dissolving three grains in an ounce of rose or distilled water. We have often seen astonishing effects from this practice. Sometimes the friction with the mixture of the three tinctures produces a marked effect; but if it should fail, the enema is the mean to be employed. The above measures embrace all the means that are usually employed in such cases, but unless it be those who are placed at a distance beyond the reach of medical aid, this is one of those diseases that requires the utmost skill of an experienced physician, and should never be interfered with except in extraordinary circumstances by any other. We must, however, be careful lest in our eagerness to administer medicines, we aggravate the sufferings of the patient, and by an ill-directed solicitude disturb the short remaining period of existence.

Chronic Hydrocephalus. In this case the disease often comes on so slowly as scarcely to produce any general affection of the system. The bones of the skull gradually give way to the pressure of the fluid effused in the interior parts of the brain, and the head becomes enlarged to a degree which would have been supposed incompatible with the exercise of any of the functions; or indeed, with the actual continuance of life. This complaint is irremediable, or if any relief can be obtained, it must be by hazarding an operation which has indeed succeeded in some few cases, but which promises so little advantage in the great majority of cases that nothing but the miserable state of existence to which the patient is reduced by the disease, could sanction its trial. See *Teething, Worms.*

HYDROCYANIC, OR PRUSSIC ACID. This acid is one of the most powerful poisons derived from the vegetable kingdom with which we have yet become acquainted. It is limpid and colourless, resembling pure water in appearance, but having a pungent odour highly irritating to the nostrils, with a peculiar sensation extending down the windpipe, and if inhaled incautiously and in large quantity producing giddiness or faintness. Its taste is peculiar, resembling bitter almonds or laurel leaves, but great caution is necessary in applying the undiluted acid to the tongue, as the operation is attended with great danger, and the taste will be discovered when diluted with eight or ten times its quantity of water.

The ancients were well acquainted with the poisonous nature of many of those plants which yield this acid, for the noxious quality of the oil of bitter almonds is noticed by Xenophon and Dioscorides, and the poisonous quality of laurel leaves by Strabo. It was not, however, until about the middle of the last century that chemists had learned to extract the poisonous or other peculiar qualities from either animal, mineral, or vegetable substances, a vast number of the latter having this acid in their composition. In 1772, Scheile, a celebrated chemist, whose name we shall have often a reason to mention, discovered this acid in a dilute or mixed form, and since that another continental chemist, Gay Lussac, in its pure state. This acid, as has lately been ascertained, is not a relative but a universal

poison. It is noxious to the higher animals in various degrees, according to strength and size and the nature of their food. For example, a drop or two injected into the vein of a feeble and carnivorous dog will produce as fatal and distressing effects as half an ounce in the powerful and herbivorous horse. The experiments of Coullon, Emmeret, and others, prove that it is not less deadly to fishes, insects, and worms; and still later experimenters have extended the wide domain of this poison, and shown its power over the vegetable kingdom, over those very plants that have been for ages past harbouring and nursing it in their roots and stalks, and among their leaves, flowers, and fruit; for the cherry, laurel, and bitter almond tree are not less the victims of its poisonous action than others. Nay, unlike its sister oxalic acid, which is said to promote germination, and resuscitate decayed or old seeds, it destroys the power of germination.

This acid exists in various natural forms, and in varied proportions, in bitter almonds, and in the kernels of the cherry, the apricot, and different sorts of plums, the peach leaves and flower, the nectarine, and cherry, laurel trees, the bark of the bird cherry-tree. The *prunus padus*, or bird cherry-tree, and the *prunus spinosus*, or black thorn-tree, are indigenous to the three kingdoms. Prussic acid is likewise met with in various artificial mixtures, such as the distilled water of the cherry and laurel, the essential oil of bitter almonds, *kirschen wasser*, and cherry brandy; and to procure this, the makers of cherry brandy bruise the stones and kernel that the liquors may have the advantage of the flavour and taste imparted by the prussic acid in the kernel. Ratafia, macaroons, and other cordials and confections have the odour and taste of bitter almonds. Of all those forms the operation is essentially the same as is the noxious element, varied only by the dose, state of combination, and other incidental circumstances, especially the state of the stomach; for were those who indulge in cherry brandy and other liquors and confections often highly impregnated with this acid on an empty stomach in place of doing so after dinner, we should hear more of their deleterious effects than we now do. Many voyagers to India and other foreign parts, procuring cherry brandy free of duty, and ignorant of the very poisonous substance from which its fine flavour is derived, too frequently, we fear, indulge in the fascinating compound. On the continent, laurel water and other preparations are in common use. The symptoms produced in man are described by Dr Coullon whom we have already alluded to, and who experimented on himself by taking excessive doses, but not those necessarily perilous to life, are a quick pulse, anxiety, ptyalism, nausea, headache. When he took, says Dr Christison, from twenty to eighty-six drops of the diluted, he was attacked for a few minutes with nausea, salivation, hurried pulse, weight and pain in the head succeeded by a feeling of anxiety which lasted six hours. Such symptoms may be induced when this acid is pushed too far in treating disease. Professor Christison is of opinion that it is probable that very large doses occasion death in a few seconds, and at all events a few minutes will suffice to extinguish life when the dose is considerable, but if the individual survive thirty or forty minutes he will very generally recover. To sum up in a few words the symptoms produced by an improper use of prussic acid. When the dose is large, death is the immediate result; but if the dose do not exceed from ten to twenty drops, it is succeeded by stupor and weight in the head, nausea, faintness, and vertigo, with loss of sight, followed by difficulty of respiration, dilated pupils, a small vibrating pulse, and fainting, which terminates in death, if no curative means be employed.

The *treatment* which observation and experience have proved most successful, is to administer diffusible stimuli, such as the carbonate of ammonia, or what is vulgarly called smelling salts, in solution, in such quantities as the patient can swallow, or liquid ammonia, such as the water of ammonia diluted with water and hot brandy and water. A tea spoonful of oil of juniper, or oil of turpentine, may be rubbed up in a mortar with half an ounce of lump sugar, and half a pint of brandy, rum, or whisky, and with an addition, an equal portion of hot water, the patient being compelled to swallow it in large wine glassfuls as quickly as possible. The aromatic spirit of ammonia is likewise an excellent diffusible stimulant, and a tea spoonful should be taken in every dose or wine glassful of the strong punch. Where the ammoniacal salt, or the liquid ammonia, or what are called hartshorn drops, or the aromatic spirit of ammonia, are not within reach, oil of turpentine and strong punch may be persevered in with some hope of success.

With respect to the tests most commonly employed for the detection of prussic acid or any other poison, it were perhaps a work of supererogation to enter into details. We have, however, under the head *Tests*, given an enumeration of those tests by which the most common poisons are discovered. For when any question arises before a court of law respecting the cause of the death of an individual, and that individual is supposed to have been poisoned, the most eminent physicians and chemists are summoned to examine the state and contents of the stomach, and satisfy the judge and jury on the subject. There will, however, be as much information found in our work, if attentively studied, as will enable any intelligent juryman to put an appropriate, and it may be a life-saving question

even to a medical witness. Suffice it to state that the most common tests employed for the detection of prussic acid are the smell, the taste, and the reaction of the suspected substance, on the addition of certain saline solutions, viz., the solution of nitrate of silver, or lunar caustic, the sulphate of copper or blue vitriol, both of which are cheap and easily procured. Or if a solution of common copperas is dropped into the prussic acid, it will produce a beautiful blue precipitate or Prussian blue. But the best in conjunction with this last, the most just and unequivocal, is the smell of the odour exhaled from the body. With respect to the modus operandi of this acid, there are many curious speculations, from a detail of which the general reader would derive little profit, although they might prove interesting to the curious inquirer. It may, however, not be without its use, even in a popular work of this kind, to allude to the morbid appearances discovered after death in the bodies of those who have died in consequence of an over-dose of this acid, taken either from ignorance, mistake, or wilfully, and what has been too frequently the case, secretly mixed in the food or drink of an unsuspecting individual.

We might almost state in no case has there ever been discovered any change of structure or trace of inflammatory action; but a strong odour of bitter almonds or of the acid, pervades every part of the body; and but for this circumstance, in connection with other tests, the assassin might lull himself in entire security from any proof of his guilt being produced by an examination of the body. If the dose has proved fatal in a few minutes the blood of the heart, lungs, and great vessels will generally yield the odour of the acid; but if the subject survive for half an hour the odour may be altogether wanting. Schubarth, who appears to have investigated this point with great diligence, says that 'this speedy disappearance depends upon the rapidity with which the acid escapes in vapour by the lungs.' In cases of more speedy dissolution, the peculiar odour of the acid remains about eighteen or twenty hours after death; but this is not invariably the case, more especially if the body be exposed to rain or a current of air. A congested state of the vessels of the brain, a turgescence of the nervous system, and the empty state of the arteries throughout the body, are all appearances generally met with. Should the examination of the blood, which is frequently destitute of fluidity, and of preternatural dark colour, be deferred for some days, there is little chance of detecting the poison by the sense of smell, or indeed by any other test, so rapid the poison may have been in its operation, owing to its subtility and volatility in the first instance, and secondly, to fragile chemical decomposition. The eyes present an uncommon appearance after death by this acid, which is by some considered almost an infallible evidence that the poison had been swallowed. There is a peculiar glistening of the eye which renders it difficult to believe that the individual is really dead. 'After poisoning with Prussic acid,' says Mark, 'even several hours after death, the eyes are found bright and animated, though utterly devoid of irritability,' which occasioned Huffland's expression, 'the clear fiery look must in such cases excite apprehension that the victim may be consigned yet living to the grave.' But Dr Christison states that death from carbonic acid or cholera may produce the same appearance. Where the odour of this acid is felt exhaling from a dead body, an immediate examination should take place, as were it deferred to the usual period after death it were difficult, nay, impossible, to insure the ends of justice by a late examination, and the assassin might thus escape.

Medical effects of hydrocyanic acid. Strange as it may appear to those who are not versant with the laws of the animal economy, and effects of certain agents on the animal system, yet true it is, that this most virulent poison, in the hands of a skilful physician, may be the means of snatching many a victim from an untimely grave. There is now happily a more simple and certain process discovered for its preparation than formerly, so that there is not that uncertainty as to the dose that then existed. For the simplest, and perhaps the best mode of preparing the acid, we are indebted to Dr Clark, formerly of Glasgow, now professor of chemistry in the university of Aberdeen. Cherry laurel water, emulsions of bitter almonds, and other vegetable substances and their preparations containing the acid, had, especially in Italy, been supposed to possess the power to moderate the action of the heart and lungs, and to oppose the invasion of fever and inflammation. These preparations were therefore strongly recommended in acute and chronic inflammations of the lungs and heart, and especially in pulmonary consumption and expectoration of blood from the lungs. Since a method was discovered, or rather many years after a method was discovered, of separating the pure acid from the other vegetable principles with which it was united, the attention of the profession was directed to this acid as an almost infallible remedy for that scourge of Britain—consumption of the lungs; and Magendie, an eminent French physiologist and physician, was of opinion that it could cure consumption if given in the first stage of the disease; but this was no new idea, for the cherry laurel water had been long used in Italy, and even in Holland, as Linnæus informs us, for the alleviation and cure of the same disease. Prussic acid indeed, shared the fate of every new remedy; volumes were published, and cases narrated in which it had performed wonders,

and restored the consumptive invalid after there had been only one step between him and the grave. But it was not only in consumption the acid was recommended, but in a vast number of other affections, especially of the nervous system. Experiments were made, and because this acid could not effect all that its admirers pledged themselves it could do; in fine, because it would not do every thing, it was by many cast aside as if it could do nothing. Experience has, however, proved that although it cannot cure pulmonary consumption it may palliate and moderate the symptoms. In regulated doses in a diluted form it is still and justly recommended as a cure for some of the following diseases, and a useful palliative in others; but although we feel deep repugnance to see it in the hands of any other than a well educated and experienced physician, still we are well aware that there are even many besides who by proper directions administer this powerful remedy. In spasmodic asthma, hooping-cough, spasmodic cough, and in the numerous diseases of the heart, attended with inordinate action, in hiccough, in indigestion, to allay irritability of the stomach, heartburn, pain in the stomach, in inveterate vomiting, in simple or painter's colic, and in tic doloreux. It has been likewise employed as an external application in cutaneous diseases, especially to abate itching in many diseases of the skin attended with that troublesome sensation, and owing to its supposed specific action on mucous membranes, it has been used as a lotion or wash in cancerous affections of the womb.

There is one effect produced by this acid that we know of no other article in the materia medica competent to effect, viz., checking continued vomiting, which it often does almost instantaneously; many lives were doubtless saved by it during the late prevalence of cholera, as it arrests the vomiting in that terrific disease almost as soon as it is administered; it was then administered to children in whom it proved equally efficacious as in adults, the pleasant taste and smell being an inducement to swallow it. By arresting the vomiting in cholera, the further loss of the serous part of the blood is prevented; other medicines may be administered without any danger of their being rejected by the stomach, and if occasion require a due portion of nutriment may be given. The very nveterate and even prolonged cases of vomiting that occur in the first months of pregnancy, and which sometimes occasion abortion, but always debilitate, the sufferer may too be relieved by this remedy. In hooping-cough Professor Thomson designates it the physician's sheet anchor. The mode of administering the acid in the diseases in which experience has proved its utility, will be found under their respective titles; but in the meantime we reiterate what we have already stated respecting this and other poisonous medicines, that they should never be administered by a domestic practitioner without the most urgent call to do so, such as distance from better advice, and the failure of other and safer remedies in a case becoming hopeless. The various forms in which the acid is administered will be found stated, but let it never be forgotten that a vial containing the acid should have a cork or stopper tied over by leather or bladder, and the vial plainly labelled —Prussic acid poison.

HYDROPHOBIA, or CANINE MADNESS, and sometimes technically *Rabies Canina*. This disease, which is produced by the bite of a mad-dog or rabid animal, is certainly the most dangerous and uncontrollable of all the disorders brought on by the introduction of poison into a wounded part. Although the exciting cause of this disease is well known to be a specific contagion communicated, as already stated, by the bite of a rabid animal, it appears to be always produced by means of the saliva being conveyed through the absorbents into the circulation. The disease never originates in the human species from any other cause, although certain symptoms, in some measure resembling it, may have proceeded from other circumstances, and has therefore led some authors to designate these cases spontaneous hydrophobia. Dr Stokes mentions a man who met with a very severe accident by being crushed against the wall by a cart which was passing, and during this man's illness symptoms of tetanus or lock-jaw occurred, and the man was frequently observed to have a strong aversion to fluids; he used to start at the sight or sound of water just as a patient who was labouring under hydrophobia, or the bite of a mad-dog, would do; but this was not hydrophobia. The dread of water, which is one of the most characteristic symptoms of hydrophobia, likewise occasionally occurs from other causes, but these cases have no right to be denominated spontaneous hydrophobia, as we have seen it sometimes exemplified in cases of hysteria. It has sometimes been asserted that hydrophobia always originates in animals of the dog kind and in no other animals, and especially that it never originates in animals of the cat species, though communicable to them by the bite of a rabid dog. This is, however, an obscure question, about which as much dispute prevails as about the spontaneous origin of hydrophobia just alluded to. The disease may, however, be transmitted from these animals to the human subject, and to some other quadrupeds, and as is alleged, even to birds, as for instance, to common dung-hill fowls. Although animals of the dog and cat kind can communicate the disease to some other animals, it is not positively known whether the herbivorous tribe can do so. Dr Ashburner, indeed, relates

one case where a fowl became rabid after having been inoculated with the saliva of a rabid ox; but we have not a sufficiency of well attested facts to support this statement. Hufeland records a case of hydrophobia occasioned by the bite of a badger, but this species of quadruped is nearly allied to the dog, although it feeds chiefly on vegetables. Attempts have been made to ascertain whether man can propagate the disease to other animals; but it was only in 1813 that experiments were made to ascertain this. Magendie and Breschet inoculated a dog with the saliva of a man in the last state of hydrophobia, which became rabid on the eighteenth day after the inoculation, and bit two other dogs, one of which also became rabid, and died in thirty days. This affords strong presumptive evidence that man may communicate the disease to other animals, but there is no proof that one human being may communicate the disease to another. And we beg this fact may be remembered, that though some persons in the disease now and then become so unmanageable as to bite those who are near them, yet that no instance is yet on record of the disease being in this way produced. Indeed, happily there is evidence to the contrary, for professor S. Cooper gives an instance in which a medical man was bit by a patient who was labouring under hydrophobia in St Bartholomew's hospital, but no ill consequences ensued. This is certainly a pleasing fact, for it was from a belief that a human being labouring under this disease might inflict it on another, that arose the horrible practice of destroying persons attacked by hydrophobia, a practice actually followed by some not more than fifty years ago, even in Christianized and civilized Britain, but which we hope will never again disgrace her history. We said fifty years, but Dr Stokes mentions a case, (in 1833), and that at no longer a period than twenty-one years previous to that date, in consequence of the horrible notions then prevalent; 'a young gentleman affected with hydrophobia was destroyed by his medical attendants by suffocation.' For the sake of the general reader who may neither have an opportunity, time, or inclination, to pursue the history of this disease any farther, we adduce the following conclusions. 1. There is no satisfactory evidence to prove that animals (not of the dog and cat tribe), can communicate the disease by biting. 2. That there is no direct proof that man has ever communicated the disease to man. 3. That in one case symptoms of hydrophobia occurred in a dog subsequently to inoculation with the saliva of a hydrophobic patient; but that this is by no means conclusive of the possibility of human inoculation, and requires farther proof. It is said that a person while engaged in the barbarous sport of cock fighting received a bite from one of the birds, which was followed by hydrophobia, but this, in the opinion of the best informed of the faculty, was a case of tetanus and not of rabies or hydrophobia.

Symptoms and characteristics of the disease. Hydrophobia commences by a peculiar feeling of anxiety, constant agitation, and considerable timidity. To these succeed difficulty of breathing, pain and constriction in the region of the stomach, and all over the abdomen, together with the characteristic symptoms of an inability to swallow fluids, which soon extend to the act of deglutition, or swallowing generally, and become so truly distressing as to impress the mind with extraordinary terror at the very idea of renewing the attempt. In fact, all the external senses become more acute, the eyes, the pupils of which are full and open, cannot endure the light, the person courts the shade, or even conceals himself in a dark place, the most trivial noises agitate him, and in some patients, such is the augmentation of sensibility on the surface of their bodies that even their hair cannot be touched without producing a violent agitation of the system. And add to this, that while the thirst increases, the inability to swallow liquids also increases, and even the sight of water brings on the most powerful and convulsive struggles, which few have fortitude even to witness. These paroxysms of violent convulsive disturbance, and the sense of suffocation, which we have mentioned, are certainly the most prominent effects of the attempt to swallow, or even to look at liquids, but they may also be excited in hydrophobic patients by other causes, such as the opening or shutting of a window or door, a bright light, or the glare of a mirror. Though unable to swallow liquids, some patients will take juicy fruits if their outer surface be made quite dry before being offered to them; and oranges covered up in paper may be tried in this way as the paper is easily penetrated. Noises of various kinds, especially those associated in the mind with procuring water or fluids, are always very painful, such as the noise of a pump, cups and saucers, &c. When by an extraordinary effort the sufferer gets down any fluid into the stomach, it is soon ejected again, together with a copious quantity of mucus and a greenish fluid. The production of a thick ropy slime about the fauces and throat, which is so tenacious as often to be compared by the bystanders to bird-lime, is another very distressing symptom as the disease progresses to its latter stage. The patient's constant endeavours to free his mouth and throat from this oppressive secretion, keep his jaws in continual motion, so that he has no respite from his sufferings; for as soon as he gets rid of one portion another is formed. Arrived at the latter state of the disease, the respiration is then very laborious, the countenance anxious, the pulse hurried, and the features horribly contorted. The patient is

now sometimes really furious and uncontrollable, though most frequently it is otherwise, and his mental faculties wonderfully calm and collected. There are instances indeed, in which the patient is so unruly as to bite himself and others who are near him, but mostly he is quite rational and governable. The urine is copious and high coloured, the bowels are constipated, and a good deal of pain is generally felt in the epigastrium and chest, and these, followed by a total destruction of all the actions, both animal and organic, are the immediate forerunners of dissolution.

The victim of hydrophobia runs through the preceding awful catalogue of symptoms and sufferings in a space of time varying from two to three, and occasionally to six, and in rare instances to eight or nine days, ere death closes the scene, and relieves the patient from all the troubles of a present world, and his friends and attendants from duties the most painful and harassing that can be conceived to a Christian and a feeling mind. In this disease the most learned of the faculty have hitherto derived no light either from theory or pathology to guide them in the *treatment*. The practice has indeed been, and still is, in a great measure empirical. This indeed were a matter of less consequence, could we point to some specific remedy for the cure, although we could not tell the mode of action on the morbid state of the hydrophobic patient.

Preventive treatment is almost the only kind of treatment that can be resorted to in this disease, and to those measures we shall more especially direct our attention. And it affords us no ordinary pleasure that some of these measures, when timeously resorted to, never fail of insuring success. The first of these is the excision or cutting out of the bitten part as speedily as possible if the operation be practicable. Considerable perplexity arises, however, from the situation or number of the bites. Thus, we may meet with cases in which the places where the animal's teeth have entered are very numerous, or the teeth may have penetrated among the small bones of the wrist or hand, or close to a large artery. And there have been instances in which it has been so close on the principal artery at the wrist, and also in the arm, and these are cases that must be referred to an expert surgeon. We have already stated the cutting out of the bitten part should be done early, for it is unquestionably the most certain means of preventing an attack of hydrophobia; but in order to answer this purpose the incision must be carried deep enough always, sometimes at least deeper than the teeth have penetrated. It frequently happens that there is an uncertainty as to the possibility of cutting out every part reached by the animal's teeth—and this difficulty will even occur where an expert surgeon is employed—in these cases therefore we would advise the adoption of a very simple, but obviously very prudent measure, viz., to wash the wounded part well by letting a stream of water fall upon it from some height out of the spout of a large tea-pot, jug, or tea-kettle, or through warm water forcibly against the part with a syringe, and by this means we possibly wash away or dilute the virus in or lodged on the sides or surface of the wound. Let this washing and syringing of the part be immediately followed, as the late Sir D. Beny has advised, by the application of a cupping glass to the part; thus you will have a chance of removing another portion of the virus; and at all events you will suspend the action of the absorbents in the part, which action, as Sir D. Beny's interesting experiments prove, cannot go on when the atmospheric pressure is removed. Having done this, you may inject with a small pointed bone syringe the muriated tincture of iron, and even then try and extirpate the wounded portion as completely as possible, and again apply the cupping glass to the wound, and afterwards wash it well with the muriated tincture of iron, or a saturated solution of lunar caustic. In deep fleshy parts there is little danger of any neat handed person undertaking the operation. The part may be seized with a pair of pliers or forceps pulled up tight, and cut out with a very sharp scalpel penknife, or a pair of fine scissors. If the marks of the teeth are separate an inch or more from each other, each wounded spot may be pinched up separately and cut out. A mad dog bit the child of a watchmaker near his own door. There were two incisions in the calf of the leg, a thick stocking having prevented them entering very deep. He immediately ran to the child, procured a friend to hold it, took the pliers used in his trade, pinched up the flesh, and cut out the wounded portions with a razor. The consequence was the child escaped hydrophobia, while others bit by the same dog died of the disease. Where the skin and integuments are loose and flabby it will be necessary to cut out a greater space.

Where no surgeon is within reach we would recommend first the washing, syringing, and cupping, as already stated, and the employment of the following caustic on which we have more dependence than any other. Powder half an ounce of copperas, or sulphate of iron, and dissolve it in one ounce and a half by measure, of spirit of salts, or muriatic acid, and then add three ounces of common spirits; this is stronger than the common muriated tincture of iron, and will penetrate to the very bottom of the deepest puncture when introduced by a fine silver wire, or fine pointed chip of wood. We regard it in point of safety next to excision of the part, but we only rely on it when no person can be

found competent to perform the operation. Those who emigrate to countries where wolves are common, should never be without the means of excision, or of using this powerful caustic. These plans, we have no doubt, if speedily carried into effect, will rarely fail in preventing the absorption of the hydrophobic poison.

Our anxiety to render this work as practically useful as it is in our power to do, will be accepted as our only apology for pursuing the subject of excision in cases of the bites of rabid animals a little further. We have said that an early excision should be resorted to, but we would not have the operation entirely neglected because it has not been done the first day or even the first week. Dr Stokes of Dublin, no mean authority on points in practical medicine, is of opinion that excision not only may, but should be had recourse to at any time after the infliction of the bite, if before the hydrophobic symptoms make their appearance. Professor Cooper is of the same mind. The remarks of Mr Pettigrew, surgeon to the Charing Cross hospital, in a clinical lecture lately delivered by him on the case of a man who died of hydrophobia in that hospital, from the bite of a cat, are so pertinent and applicable that we cannot refrain from quoting them, as they afford striking proof of the utility, nay, the absolute necessity of the operation of excision by all who are anxious to avoid the horrors of a hydrophobic death-bed. 'It is desirable,' says Mr Pettigrew, 'that excision should never be neglected, and the sooner it is performed the better, though I believe that security will be afforded by the removal of the bitten parts at any period between the infliction of the bite, and the occurrence of the first symptoms of hydrophobia. A case in point upon this matter related to me by a friend may serve to give consolation to many labouring under an apprehension as to this disease. A grandmother and three children were lying in bed, covered with but a small quantity of clothing, when a strange dog entered the bed-room and wounded the whole of them. The animal escaped, and no attention was paid to the circumstance, till the grandmother, about five weeks after the bite, became hydrophobic and died. Mr Saumarez made inquiry into the case, and learning the particulars of the injury to the mother and three children, recommended that the parts at which the bites had been made should be excised. To this the sufferers readily assented, and the marks were sufficiently obvious to direct Mr Saumarez in his operations. They all escaped the disease.' It is of course more advisable to excise the bitten part immediately, as it will be more easy then to ascertain that the whole of the part injured is removed. By holding it up to the light a crevice is perceived should a portion be left behind; but where the wound has been allowed to cicatrize it is impossible to apply this test. The only plan that can then be adopted will be to cut out rather a large portion, less injury would accrue from taking too much than too little. The striking facts, however, of Mr Saumarez's cases, and many others we could adduce, should induce every one who has been bit by a rabid animal, to submit to the excision of the bitten parts without delay. In addition to the plans, excision, washing, cupping, and cauterizing, already recommended, we would seriously recommend the use of mercurial and other alterative medicines ordered in these cases. These medicines would certainly tend to destroy the effects of the poison on the system, and might be conjoined with any other preventive medicine. Many other means were at one time in great repute, but have always failed one after another, and lost the public confidence. Among these were the Oomskirk medicine, but its reputation has declined. The practice of plunging the bitten person into the sea so many times is a practice now gone into disuse.

There were some curious statements published by a Russian physician, Dr Marochetti, in the year 1813, respecting the use of a decoction of broom tops as a prophylactic and cure in this disease. When the symptoms of hydrophobia have once made their appearance, we believe that in every case the disease has proved fatal. We are not, however, of those who would entirely neglect the administration of medicines in these cases, as even an occasional alleviation is a great boon to the sufferer. The practice usually pursued has been, in fact, to run over the various narcotic and anodyne medicines, such as opium, camphor, musk, henbane, arsenic, mercurials, and baths of every form and temperature, and even the injection of fluids into the veins has been resorted to. In the case which gave rise to the remarks of Mr Pettigrew, tobacco was employed, and seemed to afford more relief than any other medicine, and on the use of that remedy he makes the following observations: 'I have been represented as holding out tobacco as a remedy for hydrophobia. I have done no such thing, neither am I very sanguine as to its curative powers, but I do not think it has yet had a fair trial. Twenty-six years ago my excellent friend, Dr Clutterbuck, had a case of hydrophobia in a delicate child, to whom, in an advanced stage of the disease, an injection of tobacco was administered, with a view of allaying the violent spasms operating on the muscular system. It was followed by a tranquillity extending so far as to procure sleep for three hours; the practice was not persisted in, and the child died. This made a strong impression on my mind, and I fully determined to employ this remedial agent whenever an opportunity should offer.' Neither

of the cases to which Mr Pettigrew alludes afforded any chance for the tobacco to prove of advantage; the disease was too far advanced. Mr Pettigrew proceeds to state his object in administering this powerful narcotic, (for our readers should know that tobacco is one of the most powerful narcotic poisons, and that it has too often proved so even in the form of injection or enema), it was to produce 'a prostration of strength without any abstraction of the vital fluid, and to subdue the violence of spasm. It has in all cases produced tranquillity and alleviation of the symptoms, and that which palliates is likely to arrest the progress of a disease.' This being the case, we think that tobacco, in conjunction with other means, ought to be employed even if it does no more than procure a few hours' repose.

We have seen so much good result from a union of narcotic and anodyne substances when no one taken singly could afford any relief, especially in tetanic and hysterical affections, that we beg leave to propose in early stages of hydrophobia the following enema:—

> One dram of hops.
> Tobacco and henbane leaves, each half a dram.
> Extracts of hemlock and lettuce, each four grains.
> Opium in powder, one grain.
> Infuse for an hour or two in six ounces of boiling water, and then strain the infusion through a linen cloth with expression, and to the strained infusion add half an ounce of the simple tincture of asafœtida.

This enema should be slowly thrown up the rectum by a syringe, and if retained will certainly afford considerable relief. We likewise think that subjecting the system to a speedy mercurial influence bids fair to afford a chance of considerable alleviation, if not ultimate cure. The skin on the inside of both thighs, to the extent of a circle equal to the mouth of a wine glass, should be removed, and ten grains of finely powdered muriate of mercury sprinkled in equal parts on each thigh, and covered up with plain dressing. This, however, should not be done till the system has first been brought under the influence of the narcotic enema. This, no doubt, may rather be considered a bold experiment as to the application of the muriate of mercury; but as to the enema, we have been in the habit of employing it in cases nearly akin to hydrophobia with decided advantage, and that too where other means had failed. If we could but only afford the miserably tossed and afflicted hydrophobics even a short alleviation it were doing much, but we cannot describe what would be our feelings were we honoured as the humble means of snatching a fellow-creature from such almost indescribable sufferings as has been endured by many in this disease. The only cheering spot in the dark picture we have drawn of this disease is, that in the merciful providence of God, it so very seldom occurs. We have no doubt, but that in Britain it has been much diminished by the tax on dogs; but in Ireland, where almost every cottager has one or even two half starved curs, the wonder is greater. In eighty years' practice, says Dr John Johnstone of Birmingham, that is, from the time of my father beginning until now, (May 20, 1830), in which period we have probably seen among us 400,000 sick persons, seven cases only have fallen under the observation of my father, my brothers, and myself, and of these we had only one each under our own immediate care. In the Birmingham hospital, established fifty years, 112,725 patients have been admitted, and among them there has been only one case of hydrophobia; on these data the average occurrence of hydrophobia is one in 120,000 cases.' We fear, however, that the hydrophobic statistics of Birmingham are not to be taken as even an average rule of reference in this case.

HYDROTHORAX, OR DROPSY OF THE CHEST. This disease is characterised by sudden startings from sleep, with anxiety and palpitations of the heart, difficulty of breathing, particularly when in a horizontal posture, paleness of the visage, cough, anasarcous swellings of the lower extremities, thirst, a scarcity of urine, and fluctuation of water in the chest, sometimes felt by the patient, and at other times by a medical attendant or some other friend. By the use of the stethoscope the existence of a fluid in the cavity of the chest, which constitutes this disease, is more easily discovered than formerly, and even its situation and quantity more correctly ascertained, as the fluid may either be in the cavity of the pleura, the cavity of the pericardium, or bag that contains the heart, or in the cellular substance of the lungs, and thus forming three species of the disease, designated by authors according to the name of the part where the fluid exists; frequently, however, all these three disorders are co-existent, and the definition we have given so full, that any very lengthened detail of symptoms are altogether unnecessary. For the sake, however, of those who are not stethoscopists we may supply such additional characteristics as are omitted in the previous definition. We may, therefore, notice that there is not only a paucity but a paleness of urine, the pulse is irregular, and occasionally intermits; when the collection of fluid is in both cavities of the thorax a numbness is often felt in one or both arms, while difficulty of breathing, or a sense of oppression, is felt the moment the patient attempts a reclining posture. In other cases the occurrence of this difficulty of breathing is more gradual, and it may then be presumed that the effusion is rather in the cellular membrane than in the pleuritic cavity. The palpitation of the heart in other cases is more than ordinarily urgent, and the pulsations at the wrist more than usually intermittent, and the main seat of the disorder, we have then reason to suspect, is the pericardial cavity. With respect to the

causes of this disease, there is no doubt, in addition to the causes we have enumerated under *Dropsy*, that whatever produces inflammation or congestion of the pulmonary vessels s most likely to be productive of dropsy of the chest. The disease is indeed very symptomatic of diseases of the heart, lungs, liver, and other visceral diseases in which the kidneys often bear a conspicuous part, and is brought on by the interruptions to pulmonary regularity of function which these visceral diseases oppose, and we would therefore only be repeating what we have before stated of causes when treating of general dropsy, &c., and to which we refer as equally applicable to this affection.

As hydrothorax from its local situation is more connected with functions that are essential to life, its prognosis is more unfavourable, and especially if much organic disease accompanies the complaint, or when it has been induced in a chronic insidious manner. It should likewise be borne in mind by all concerned, and prognosticate, and act accordingly, that death in most cases, indeed by far the greater majority, very suddenly occurs, although in a few rare instances the approach of death is indicated a few days previous by a spitting of blood. The prognosis under such circumstances is almost always unfavourable, as it has seldom been cured, although there are a few who have escaped. Respecting the diagnosis, no great difficulty exists; asthma is perhaps the only disease with which, in a certain stage, it is likely to be confounded; but an attentive perusal and reflection on the definition and symptoms, and those of asthma, to which we refer, will clear up any doubt; in the latter stage hydrothorax will be found very frequently accompanied by a greater or less degree of anasarca, and even ascites.

Treatment. If the prognosis of a disease is pronounced almost always unfavourable even by the most experienced physicians, how much more so in the hands of a domestic practitioner, who perhaps in the course of events may be situated where no professional medical aid can be procured. If there is no serious organic disease, or in other words, if the heart, lungs, liver, stomach, and kidneys are all sound—weak and debilitated indeed they may be, and in such cases always are so—an effusion of fluid into the cavity of the chest may be as easily removed as an effusion into any other cavity of the body. If, however, the organs of circulation and of respiration are diseased, even should the disease be ever so trifling, and if the digestive organs and the absorbent system have been weakened and worn out by repeated acts of intemperance, a residence in warm climates, and other causes, then the palliative or the placebo system, as it has been called, may be adopted, and the patient's mind diverted by any person in whom confidence is placed, as well as by the most skilful physician in the empire. The treatment of hydrothorax differs very little if at all from that of ascites or anasarca, especially the former, for we have cured all the three by the very same means, our chief reliance being on foxglove or digitalis, and other diuretics, with external diffusible stimuli. The bowels having been brought to a proper state by means of aperient medicines, such as the Gregory's powder, or the compound powder of jalap, diuretics are to be employed and steadily persevered with. Among the most commonly employed are foxglove, squill, nitre, common broom, dandelion, and common parsley. From five to fifteen drops of tincture of foxglove may be given in water three times daily, increasing the dose from time to time, or adding a few drops of tincture of squill to render it more effectual. A cupful of brown tea may also be taken from time to time, with a view to increase the flow of urine. Bleeding in some cases is necessary, and blisters are frequently useful; but as the disease is generally complicated with affections of particular organs which may demand varieties of treatment suited to their condition, which can only be detected by an experienced practitioner, it would be unsafe to entrust much more to the judgment of a non-professional.

An occasional enema of half a gill of beef tea, and twenty-five or thirty drops of each of the tinctures of opium, henbane, and lactucarium may be administered at bed-time if there is much nervous excitement present, or the patient is very restless. This should be slowly thrown up, and if retained only one hour, will greatly lessen the unpleasant feelings, and procure sleep, as it is more effectual than a simple opiate enema. If there are objections against the enema, a pill or small ball of three grains of the extract of henbane, one of the extract of lettuce, and a grain of powder of opium, may be covered with lard or butter, and introduced into the rectum. The enema is, however, preferable, for the beef tea serves another purpose than being merely the medium of administering the tinctures. It may be that little or no effect will be produced till the tincture of foxglove is taken to the extent of twenty or twenty-five drops as a dose. No one but those who have felt it can at all imagine the painful debility under which the patient labours in dropsy, and we have no doubt many lives are lost from want of attention to this circumstance. Small portions of aliment should always be administered very frequently, such as beef tea, chicken broth, or arrow root, or Iceland or Irish moss, well boiled and in quantities of about four ounces, or a small cupful at each time, with two tea spoonfuls of brandy, or gin, or whisky in each portion—the

brandy in most cases being superior to wine—until the patient's strength is somewhat restored. With respect to tea, we consider it a useful diuretic, and an infusion of equal parts of black and green tea formed into punch or toddy, by a table spoonful of gin, forms an excellent tonic diuretic.

It must not, however, be imagined that we can expect success in every case, even where there is youth on the patient's side, by a similar line of practice in any species of dropsy.

HYGIENE. This title is applied to that branch of therapeutics which treats of the diet of the sick, &c. It consists in the investigation of those circumstances which tend to the promotion or the preservation of the health; and is a subject of much importance and of extensive interest. It is obvious, that by a complete acquaintance with the causes of disease, we learn the most effectually to guard against them; and that it is by a due regulation of air, exercise, diet, and other circumstances, which we have considered at some length under their respective heads, that we are to produce such a vigorous state of the constitution as renders the body most capable of performing its functions, and the least obnoxious to morbid or diseased actions of various kinds. There is yet no complete work on this subject in the English language. The late Sir John Sinclair, with his characteristic patriotism and industry, collected a mass of materials on this subject, but they require to be digested and arranged, and greatly improved.

The subjects of this branch of medical science are in their nature those which appertain to the general management of the sick, and the regulation of their diet, and other matters usually comprehended under the term regimen; and likewise those observances which individuals in a state of health adopt for their own governance; or, in other words, those sanatory rules which a man has been enabled to deduce from his own personal experience, or adopt on the recommendation of others, as conducive to the preservation of his health. Under this head are likewise included the subjects of climate, exercise, food, clothing, cleanliness, and other interesting matters, which will be found discussed at considerable length under their various heads throughout this work. What is usually termed medical police is likewise included in this department. By medical police is understood the application of legislation to relieve the physical necessities, extend the physical comforts, and improve the physical condition of the human race; and constitutes an important part in the science of government. To be enabled to do this, it is evident that the legislature ought to know something of the constitution of the human frame, of its capabilities of improvement, of its liabilities to deterioration, and of the agents producing both these results. But if this knowledge be so necessary to the legislature, how pre-eminently more so is it to the medical man, and yet few subjects in the present day are less known to the great bulk of the profession. When, therefore, called upon to give evidence on subjects connected with public health, it not unfrequently appears that they had only thought of it for the first time, when before the committee of inquiry, and by their replies afforded evidence of their almost entire ignorance of the subject. This is indeed no libel, as the reports of the various parliamentary committees which have been appointed to institute such inquiries afford incontestible proof; and we need not go farther back than refer to the evidence on the quarantine laws, the proceedings of the board of health appointed to devise means for checking the ravages of cholera, and other instances too notorious to be again recorded. There is not, however, in the annals of medicine a more melancholy and affecting example than that which occurred in the secret expedition to Flushing, when thousands of our brave countrymen were sacrificed at the shrine of medical ignorance, and when the heads of the army medical board ought to have been duly tried, and found guilty of the crime of wholesale murder. The elementary principles of medical police are indeed derived from the aggregate evidence afforded by the observation of individual facts, yet these once obtained, the most satisfactory and conclusive evidence of their correctness is to be found in the observation of the influence of physical agents on large communities, and in extensive districts. The observances of hygiene as to food, drink, air, exercise, rest, sleep, exertions, retentions, and passions of the mind, were known from the time of Galen up to a period scarcely gone by, by the absurd name of the 'non-naturals,' and much attention was paid to these matters long prior to the time of Galen, as is exemplified in the writings of Hippocrates. The Greek physicians knew very well that the greater number of diseases arose either from some error in diet, casual or habitual, some effluvium or vicissitudes of the atmosphere, some over-exertion or fatigue, or from certain secretions suppressed, or excretions retained, or lastly, from some violent emotion of the mind, and that the first step in checking the disease was by removing the cause of it. It was in keeping these facts in view, and sedulously putting them in practice, as therapeutic agents, that the Greek physicians principally excelled. With what other object did they so much cultivate the athletic exercises of the gymnasium, or use frictions with an almost religious punctuality, or resort daily to their baths to the Thermæ and Sadotoria. Indeed, every wise and provident government adopts or enforces

certain regulations or enactments for the health of the whole community. Of this description are all those enactments relating to public sewers and public nuisances, as the accumulation of filth, the laws of quarantine, the drainage of public lands that are marshy, the plentiful supply of wholesome water, and the establishment of hospitals and other kindred institutions. It was to the crusades that we owe the first institution of hospitals in Europe. The enthusiastic followers of the banners of the holy cross brought back with them the leprosy, but with the bane they also brought its antidote. Lazarettos were built to keep the unclean by themselves, and to prevent the propagation of the disease. The disease for which such places were first erected disappeared in the course of time, but not the institutions; and it was from the lazarettos that our hospitals and infirmaries sprung. The science of medicine, in its career of philanthropy, picked up the invalid, and made him sound, who formerly would have been left by the wayside as incurable. Thousands are now sent back to society from the healing hands of the physician and surgeon, who would have before been allowed to pass uncared-for to the grave. Happily in Great Britain private Christian philanthropy has superseded the necessity of government interference in the erection, support, or management of hospitals, infirmaries, lunatic asylums, lying-in, fever, small pox, and ophthalmic hospitals, dispensaries, &c. &c.

There are many popular treatises on diet, &c.; the best is by Dr Combe, containing abundance of facts scattered throughout the medical periodicals, and other medical writings, in this country as well as on the continent of Europe and America, and in our own colonies. Public hygiene has never met that share of attention which the subject merits. In the course of this work there will be found, we flatter ourselves, a number of useful hints on the subject. The establishment of gardens in the vicinity of great cities, for the benefit of mechanics and their families; the construction of proper habitations for the same class; the erection of public places of convenience, of which there is a great deficiency in many towns; the erection of public baths; and the observance of a more systematic plan of cleansing and ventilating; are a few of those measures which merit the attention of the legislature and the public.

HYSSOP, Common, or *Hyssopus Officinalis,* is an old favourite herb with the industrious classes of society, and is to be met with in almost every kitchen and cottage garden. It is perennial, and grows wild in Germany. The herb and leaves have a warm, pungent taste and aromatic flavour. Its virtue resides in a volatile oil, which it yields by distillation, either to water or spirit. This oil is, however, seldom used in Britain, although it was once of high repute, as well as the distilled spirit and water. It was supposed to possess kindred properties with the horehound, and was formed into candy for the relief of cough. Its best domestic preparation is that of infusion, and it is daily drank in this form by old people afflicted with asthma, and no doubt affords a little temporary relief. We are more disposed to attribute its virtues to its aromatic and tonic effects; and those who have no objections to its taste or flavour, will find it a very safe substitute for common tea, especially if mixed with equal parts of balm. Indeed, it possesses no ordinary invigorating qualities. It should be gathered when the flower is beginning to expand, dried in the shade, and kept in paper bags or opaque bottles. The infusion is made by adding two drams or one-fourth ounce to a pint of water, and when for cough, double that quantity.

HYSTERIC DISEASE, or HYSTERIA. Of all the diseases in our systems of nosology, there is perhaps none of which it is more difficult to offer a short definition than this. Hysteria assumes such a Protean variety of shapes, exists under such a variety of forms, differs so much in its violence at different times, and is so peculiar in its nature, and in its effects upon the animal economy, that we feel some difficulty in giving a concise and summary history of the phenomena it presents. It is, however, characterised by convulsive affections to a greater or less extent, both of the voluntary and involuntary muscles of different parts, occurring in fits or paroxysms, accompanied by more or less insensibility, though that insensibility is rarely complete, there being generally some degree of consciousness of what is passing around. There is sometimes violent struggling, often pain of the head, either the forehead or occiput, the countenance is sometimes flushed, and the eyes suffused, occasionally there is either mental dejection or torpor between the paroxysms, with a disposition to frequent sighing, followed by crying or laughing, the one often alternating with the other, so that the patient, in the midst of a violent paroxysm of crying or sobbing, will often burst into an immoderate fit of laughing; a sensation of choking in the throat, sometimes almost appearing to threaten suffocation, as if a ball or a bladder filled with air occupied the wind pipe, and pressed on all surrounding parts; and this has been denominated *globus hystericus,* or hysterical ball or globe. The respiration is hurried and laborious, with heaving of the chest, harsh, dry, spasmodic cough, frequent palpitation of the heart, with throbbing of the carotids, spasm of the glottis and diaphragm, the abdomen often tense and tumid, the stomach and intestines filled with flatus, rolling about and making a

noise, as though a number of pumps were at work, and which, by passing up the œsophagus, pressing on the air passage, constitutes what we have already described as the globus hystericus, inducing a feeling of suffocation. Occasionally the stomach itself is so irritable, that every thing taken into it is instantly rejected, the bowels most commonly are torpid, though they sometimes, like the stomach, are irritable, and there is frequent diarrhœa. In the majority of cases, the urine is secreted in increased quantity, pale, limpid, nearly colourless, passed frequently, and without difficulty. In others again, although secretion may still continue abundant, the muscular fibres of the bladder refuse to act, and the distended organ is obliged to be relieved by drawing off the urine by an instrument. There is sometimes a severe and constantly fixed pain in some one part, most commonly over one eye, and which pain the patient speaks of as being like a nail driven into the part. This is termed *clavus hystericus*, and is not so frequently met with in the case of males who are afflicted with this disease, as in the case of females. In hysteria the pulse is variable, usually very quick, and differing of course in strength according to the state of the muscular system, as regards any tendency to plethora, for the disease attacks the plethoric and those of a full habit, as well as of the opposite condition, though the latter, or those of a thin delicate frame, are certainly most prone to this affection. The whole of the symptoms above enumerated are sometimes present, and in others only some of them. Occasionally the limbs are rigidly fixed in one position; at other times, they are violently agitated; occasionally too there is a general stupor, approaching to coma; at other times pains are felt, which are so violent as to cause the patient to utter the most horrid screams. According to the opinion of many medical men, hysteria is considered only as a nervous affection; but Lisfranc says, that 'experience belies this too exclusive idea, for if sometimes the disease be nervous, it more frequently (he adds) results from a slight irritation or inflammation of the uterus.' The term hysteria is derived from the Greek word for womb, and necessarily implies that the uterus is the seat of the disease. In many instances, some derangement of that organ may be the exciting cause, but in the great majority of cases, the term is inapplicable, because the exciting cause may proceed from some derangement of function in the alimentary canal, and may be traced to the suppression of some habitual discharge. Indeed, there seems to be something very mysterious about the exciting causes of this disease. It appears in many cases to be merely a mental affection, induced by violent passions and strong emotions, and so much does Dr Bostock consider this to be the case, that he affirms that the patient is certainly able, by voluntary exertion, to prevent the accession of the disease, which, if it had been suffered to proceed in its usual course, would have assumed the formidable appearances by which it is characterised. The symptoms are frequently induced by a kind of imitation, where the sight of a patient labouring under the disease, will bring a similar disease on the by-standers. These facts have led some persons, both professional and unprofessional, to consider hysteria as always a fictitious complaint, and one entirely under the control of the will, which, like the expression of anger, may be always restrained, being assumed for the purpose of exciting sympathy, or other similar motive. To a certain extent this may be true, and we have seen cases in which we had no doubt it was true; but we apprehend that no one who has frequently witnessed the disease in its very aggravated form, as we frequently have done, can for a moment suppose that it is always so. Indeed, we cannot conceive how any voluntary effort could produce the effects upon the various organic functions, that are so frequently observed in this disease, or that any thing except a highly morbid or diseased condition of the animal economy, could enable the patient to perform the convulsive muscular exertions, which far exceed what is ever observed in the same individual at other times. Hysteria is generally believed to be almost entirely confined to females, and among them it is generally met with in those of feeble muscular powers, but of great nervous sensibility. Instances, however, and those of more frequent occurrence than is generally imagined, are not awanting of its appearance in the male sex, especially those whose state of body and mind are most similar to the female constitution, and some who have reduced originally powerful minds to a state of almost complete imbecility, by too early and over-exerted energy in the pursuit of literature. We lately read a very interesting report of a well-marked case of the disease occurring in a clergyman of fifty. This disease often puts on the form of epilepsy, (see *Epilepsy*) and of mental alienation or insanity, and to the articles on these subjects we likewise refer; indeed it is often extremely difficult to distinguish between epilepsy and hysteria, especially as the one disease appears in its mildest, or the other in its most acute form. The globus mentioned is not always present in hysteria; and there are certain cases which seem entitled to the appellation of epilepsy, yet, where the insensibility is not complete, and where the state of the feelings and of the nervous functions very much resemble what has been described as characterising hysteria;

and besides this, the one disease is somewhat easily convertible into the other, what begins under the form of hysteria, often terminating in epilepsy. Hysteria not only renders its immediate victim melancholy, and induces epilepsy and mental alienation, but it frequently produces great trouble and discontent in the domestic circle, and especially so when young females are its subjects, seeing that it occurs at all ages, from puberty to the cessation of the menses. Writers on hysteria say, that when a woman barks in the presence of others, it brings on the same complaint in them, and they imitate one another; and to this circumstance we have already alluded. 'I know,' says Dr Elliotson, from whom we quote the case, 'several medical men who were sent for to a village where there was a girl who was taken with the hysteria, and barked. Nearly all the women were taken with the same complaint, and barked in a similar manner; and set up such a howling as to frighten the people in the village. This girl, up to the time of her coming here, (the North London Hospital) complained of great pain on the surface of the body. I found the surface of her body very tender, and from so slight a pressure that I at once made up my mind as to the nature of the disease. If the pain on so slight a pressure had been the result of inflammation, we should have had general disturbance of the whole system. In general in this disease, we find the tenderness on the anterior surface of the body, on the chest, the abdomen, and I have even seen it in the extremities; but in general it is confined to the body. These symptoms frequently lead people into error; however, when there is inflammation of the peritoneum or pleura, in the former the inflammation is seldom so severe as to be so painful from slight pressure; and when it is, there is always great disturbance of the whole system accompanying it; whilst in the latter, there is not any pain produced but from severe pressure; in hysteria pain is increased from the least pressure made either upon the abdomen or thorax. In peritonitis there are always constitutional symptoms present. In pleurisy there is scarcely any pain from pressure on the chest. Hysteria is not the only disease produced by terror, for at the present time there is a case of epilepsy in the hospital which was produced by the boiling over of a tar copper, the man being nearly suffocated, and in the same ward another of paralysis agitans (or shaking palsy) produced by the man's falling into the water. Many other diseases of the nervous system may also be produced by fright. When any of these diseases arise from this cause, our prognosis may in general be favourable. This girl had fits before she came in with pain in the head, and had been accustomed to bark when in the fits. The treatment adopted was cupping on the occiput, (or back of the head) active purgation, and the cold shower bath daily, which I did not hesitate to employ, being quite certain, from the symptoms, that there was no inflammation present. She took half a drop of croton oil every day, and for the tenderness about the stomach and chest, I ordered a scruple of croton oil (about twenty drops) to be rubbed upon them twice, which brought out a thick eruption upon those parts. The cold shower bath braced her up. She came into the ward on 10th September, and left the hospital on the 11th October, quite well.'

This case may be studied with advantage, as it brings before the domestic practitioner some of the facts and circumstances connected with the history of this disease, that could not have been introduced so appropriately in any other form. We have frequently noticed the great sensibility to pressure on the body remarked on by Dr Elliotson; it has been alluded to by other writers on the disease, and Dr Roots, of St Thomas's Hospital, has made some very judicious remarks on the subject. Indeed, there is no danger of its being mistaken for inflammation of the internal viscera, which would indeed be a serious error. 'The great sensibility of the sentient extremities,' observes Dr Roots, 'of the nerves, on pressure over the chest or abdomen, is common to hysteria, whatever be the existing cause; but where there is irritation or congestion of the uterus, we find that this pain is greater, and the hysterical paroxysm more easily induced by pressure over the hypogastric region, than over any other part of the abdomen, more especially by pressing over the pubes.'

With respect to the treatment, the disease, when it appears in its unmixed form, and is not the forerunner of epilepsy, or symptomatic of any other disease, is seldom attended with danger, although it may be difficult to remove. The indications are to prevent or cut short the paroxysm, and to obviate its return. The first of these is accomplished by any sudden impression upon the mind or the organs of sense. The general directions for cutting short the paroxysms it is almost impossible to lay down, as so much depends upon the peculiar circumstances of the case, both with respect to the bodily and mental constitution of the patient. Those who believe that the disease is in a great measure under the control of the patient, sometimes employ reason, and even satire and sarcasm; but these are very improper agents, and can only be resorted to in the case of a person of suspicious and cruel disposition. 'To command or advise a patient labouring under nervous depression to be cheerful and alert, is no less idle and absurd than it would be to command or advise a person under the direct and intense influence of the sun's rays to shiver

with cold, or one who 'was wallowing naked in December's snows,' to perspire from a sensation of excessive heat. The practice of laughing at or scolding a patient of this class, is equally cruel and ineffectual. No one was ever laughed or scolded out of hypochondriasis. It is scarcely likely that we should elevate a person's spirits by insulting his understanding. The malady of the nerves is in general of too obstinate a nature to yield to a sarcasm or a sneer.' The dashing of cold water suddenly, and if possible imperceptibly, over the patient, will often act beneficially. Antispasmodics, stimulants, and carminatives, especially preparations of asafœtida, likewise occasionally shorten the fit. We have seen some very severe paroxysms of hysteria shortened by an enema formed of from forty to fifty drops of laudanum, and half an ounce of the tincture of asafœtida, in four ounces of warm water, and carefully administered, so as to be retained, stop the fit by throwing the patient into a sound sleep, from which they frequently awake unconscious that they had been subjected to such an operation. The following, however, is preferable: Two drams of the purest asafœtida and two grains of opium dissolved in four ounces of boiling water, carefully strained and allowed to cool; or where it can be procured, the same quantity of water boiled for ten minutes with a spoonful of flax-seed, and the asafœtida and opium dissolved in the decoction. Indeed, an enema prepared and administered in either of these forms, will seldom fail of procuring relief in three quarters of an hour. The ammoniated spirit or tincture of asafœtida may likewise be administered in doses of forty or fifty drops, in a wine glassful of peppermint or penny royal water. We have often, too, seen good effected by a large sinapism over the pubes, of at least the size of one of our pages, and allowed to remain on for nearly an hour.

With regard to the treatment pursued in the intervals of the paroxysms, we think some such treatment as that pursued by Dr Elliotson, in the case we have narrated, may be followed. We would recommend the purgative plan, combined with tonics and antispasmodics, endeavouring to restore the due balance between the powers of the system, by increasing strength, while we diminish action. Two of the pills of aloes and asafœtida may be taken every third night at bed time, and six drams of castor oil and two drams of turpentine, well shaken together, in a glass of pennyroyal tea, the following morning. A fourth part of the following mixture may be taken every night at bed time:

Take of extract of henbane, one scruple.
——— of hops, one dram.
Peppermint water, seven ounces.

Rub the extract in a stone mortar, gradually adding the water, until they are dissolved. Strain the mixture through thin linen, and then add six drams of syrup of ginger or simple syrup, and two drams of the volatile aromatic spirit. This should be well shaken before using. A half pint bottle divided in four parts by marks, is the most convenient for a medicine of this description, as it more accurately apportions the dose.

The third part of the following mixture may likewise be taken an hour before meals daily, except on the days when the castor oil and turpentine is taken, when it is to be omitted. Take twelve grains of the sulphate of quinine, put it in a six ounce bottle, divided in three portions, add to the quinine thirty-five drops of the aromatic elixir of vitriol, and then fill up the phial or bottle with cinnamon water. An enema, composed of half an ounce of Glauber or Epsom salts, dissolved in half a pint of strong infusion of the herb rue, may be used every morning, except on those mornings the oils are taken. A cold shower bath is to be used every second morning, and the body immediately and quickly dried with considerable friction, observing that the inner dress must be shifted on each occasion of receiving the shower, and that the inner dress consist of either woollen or thick cotton, for linen is by no means to be worn next the person. The diet must be nourishing, without being stimulating: sowens or flummery, manna-croup, arrowroot, Carragaheen moss, sago, biscuit, and milk; white fish, such as whiting, haddock, or sole, and fresh water trout; chicken broth thickened with flour, hare or rabbit soup. Such a system of diet and medicine, regularly pursued, with moderate out-door exercise, will effect all perhaps that is in the power of medicine; and we have known one month of such a course remove rather obstinate cases of this disease. A longer perseverance will, however, in most cases be required. But let it be remembered that the best devised plan of medicine will fail, if the mind is not regulated by laws of forbearance, benevolence, affection, gratitude, and confidence. A vain man, and a vain, jealous, suspicious woman, are verily beyond the reach of medicine; and continuing to act on these principles, once in hysteria without a change in their mental constitution, they will ever remain so, a burden to themselves, and a source of grief to their friends.

I

ICE, Glacis. This well known substance in cold latitudes needs scarcely to be described, being only water rendered solid by cold. Ice is employed to preserve salmon and other fish in a fresh state, and for this purpose families could easily employ it with advantage not only in the case of salmon, but beef, mutton, fowls, &c.

ICELAND MOSS, or *Lichen Islandicus*, or LIVERWORT. This perennial plant grows in great abundance in Iceland, and in some parts of Germany, Lapland, and Sweden, and is met with in some districts of the Highlands of Scotland. It grows on stones and on the earth, and so much of the *amor patriæ* have the natives of Iceland, that they consider their country the most blessed on earth, seeing that Providence makes the very stones of the field to produce them nourishment both for themselves and their cattle. This dried lichen, as imported, has a bitter mucilaginous taste, and is inodorous, and of a greenish white or gray colour; but when fresh, its colour is greenish yellow, or grayish brown.

The properties of this moss have been variously reported; but there is no doubt it possesses tonic, demulcent, and nutritive qualities, according to the form in which it is prepared, and the quantities in which it is taken. As an article of diet, when boiled about fifteen or twenty minutes, it may be eaten with animal food as an esculent vegetable; but its appearance, when cooked in this way, is not very prepossessing, having an unequal yellow colour, and a slight marine smell; but there is no doubt that in this form it is a valuable antiscorbutic, and therefore a valuable article of sea stock. When converted into a jelly, and deprived of its bitter principle, it forms not only a useful and nutritive diet, but is very agreeable to most palates. For this purpose, an ounce or ounce and half may be freed from any adhering dust by blowing on it with a pair of bellows. It may then be put in a pint of cold water, along with a dram of carbonate of potash; and after it has stood an hour in this water, it is to be taken out and boiled in a pint of sweet milk for fifteen minutes, or until it is formed into a mucilage or jelly. The infusion in the water and carbonate of potash frees it in a great measure from its bitter principle, and is therefore an essential part of the process in those cases where the latter is very disagreeable to the patient. Some prefer it in water alone, or in equal parts of milk and water. Analysis shows that this moss consists principally of a nutritious substance combined with a bitter, and on this combination its medical virtues depend. When used as a medicine, it is therefore better to preserve its bitter principle, at least in many cases it is so; and therefore the colleges have ordered a decoction in which that principle is preserved.

Decoction of Iceland Moss.

Dried Iceland moss, half an ounce.
Boiling water, a pint.

Digest or infuse the moss in the boiling water for two hours in a close vessel, then boil for a quarter of an hour, and strain the liquor while hot. The decoction has a clear yellow colour and a bitter taste, which even when made with eight waters, on cooling becomes a tremulous jelly, without any acidity. The quantity allotted to be prepared as above may be used in the course of a day. It is likewise used by some combined with chocolate or cocoa, and in this form is more agreeable.

The diseases in which it is employed are—coughs, pulmonary consumption, spitting of blood, hooping cough, measles, and as a general restorative after a continued use of mercury. Dr Herz bears testimony to its efficacy in dysentery, in which he found it so successful, that he had never occasion to employ any other remedy. It must be observed, however, that cathartics were always repeatedly used before he had recourse to the lichen, to which he also occasionally added opium. For our own part we can recommend this moss as a most valuable auxiliary in dysentery and consumption, but in neither case must it be trusted to alone.

ICHOR. A term used to denote a thin, acrid, and sanious discharge from wounds, ulcers, &c.

IDIOSYNCRASY. Individual peculiarities of constitution, whether hereditary or induced. For example, we often find in practice that a medicine which is given generally with advantage, may in one particular case not only produce disagreeable but even dangerous results. This is said to be owing to a peculiarity of constitution or idiosyncrasy of the individual. Accordingly in prescribing, it is always advisable to inquire if there be any medicinal substance which disagrees with the particular patient; and this is especially necessary when about to prescribe mercurials, opium, and other active medicines.

ILIAC PASSION, or *Ileus*. This disease is generally preceded by a costive state of the bowels, and in its first symptoms resembles colic. There is intense twisting pain at the navel, foul taste in the mouth, frequent fœtid eructations, and the vomiting of bilious matter.

Obstinate constipation is the marked symptom throughout. If evacuations from the bowels be not soon procured, vomiting of fæcal matter takes place, and there is generally increased rapidity of the pulse, and fixed pain on pressure at some part of the abdomen in the more advanced stage, showing that inflammation has commenced. If these symptoms be not relieved, the vomiting increases, the extremities become cold, the pain ceases, the belly becomes tumid, there is incessant hiccup, and death soon closes the scene. From the close resemblance of many of the symptoms of this disease to those in strangulated rupture, it is necessary to examine carefully lest such exist, before proceeding to the treatment. One cause of iliac passion, revealed by dissection, is, that one part of the gut is drawn within another, causing what is termed intus-susception; but the most frequent causes are inattention to the state of the bowels, indigestible food, cold feet, and certain mineral poisons, as lead, &c.

Treatment. If the patient has been previously healthy, he should be freely bled and placed in a warm bath till he begins to feel sick, a purgative enema containing turpentine having been previously administered. In the most of cases this, if early resorted to, will be found successful in causing evacuations, but if it is not, a full dose of calomel combined with the compound extract of colocynth should be given, or what is better, two drops of croton oil mixed in a table spoonful of gum or barley water, and repeated in four hours if the first dose does not operate; fomentations and sinapisms are to be applied over the abdomen; and if the pain increases, the bleeding may be repeated, whilst enemata must be used to procure evacuations if possible. In some cases where all the above means have been used without effect, great benefit has been derived from the use of calomel combined with opium or extract of henbane, or a combination of both. If the disease proceed from the effects of lead, the sulphate of alum, in doses of ten grains, given thrice a-day, dissolved in water, has been found very useful. Electricity has also proved of service when all other means had failed, and is well deserving of further trial. There is one other remedy as a last resort, but it is one which should never be had recourse to except by a medical man. We mean the tobacco injection. It is made by infusing a dram of tobacco leaves in an English pint of boiling water; one half being used, and repeated in half an hour if not successful; but it is exceedingly uncertain and hazardous in its action. It produces an indescribable sensation of sickness and sinking previous to operating on the bowels; indeed, it is by inducing faintness that it succeeds, but in not a few cases the patient has never rallied from its effects. Metallic mercury was at one time used with the idea of forcing a passage through the bowels, but the reader only requires to look at the plate of the intestinal canal, to be convinced of the absurdity of such a proposal.

INDIAN RUBBER; known also by the names of elastic gum, caoutchouc,&c.,is prepared from the juice of the *siphonia elastica*, and is used in the formation of various instruments in surgery, and by a late discovery has become very generally useful in the manufacture of waterproof cloth, an invention which will do much, perhaps more, in arresting the progress and extension of diseases of the lungs than any other. It is likewise extensively employed in domestic economy.

INDICATION. When it is said respecting the cure of a disease, that the indication is to clear the alimentary canal, it is the same thing as if the physician had said that the first step towards a cure was to clear the alimentary canal. Indication is divided into that which relates to the preservation of health, and the curative or the expulsion of a disease.

INDIGENOUS is a term applied to plants by botanists, and to diseases by physicians, when speaking of those that are peculiar to any country.

INFLAMMATION. Under the article *Adhesive Inflammation*, we have given something like a history of what takes place in the healing of wounds by the first intention, and in the article *Gangrene*, the nature of that termination of inflammation has been shortly explained. It remains, however, to give a more particular and circumstantial account of what is generally understood by the term, which is so very familiar to every class of readers, or more correctly attempt to afford a succinct view of the phenomena usually understood to be referred to when the term inflammation is employed by medical writers, or even in common conversation. 'Inflammation,' says a popular medical writer, Dr Uwins, 'must like many other nosological terms be received in spite of its vagueness, since it is much easier to find fault than to find names; and changes of terminology, unless made in a very gradual and satisfactory manner, are like to effect harm rather than promote precision.' Inflammation of the exterior surface of the body is recognized by four phenomena—pain, swelling of the affected part, increase of heat perceptible to the person suffering from it, and even to the observer, in comparison to the surrounding parts, and by redness beyond the natural degree.

Let us now look into the rationale of the symptoms just mentioned. An inflamed part is a part with increased redness; this, it is sufficiently obvious, is principally caused by distended and increased vascularity. Pain, more or less acute, according to the locality, is also

present as a symptom of inflammation, which pain seems referable to distension and pressure upon nervous fibrillæ, and upon that increased sensibility which it is natural to suppose must accompany deranged action. The augmented heat of inflammation is partly produced by excited action, which almost always engenders heat, and probably, as Dr Hastings suggests, by the new chemical affinities that are brought into play by the blood's decomposition more rapidly than would in the ordinary state of things be effected; and the heat of the greater quantity of arterial blood may moreover assist in accounting for the increased heat, which is so conspicuous a feature in inflammation. Tumour and swelling are caused in the part by distension from the increased quantity of blood sent to the part, but principally by the overloaded vessels relieving themselves by effusion into the surrounding tissues. The sympathetic commotion, or febrile state of the system, which supervenes, is referable to a law of the animal economy, by which the distress of a part interferes with and disturbs the harmony of the whole. A general division of the kinds of inflammation has obtained among medical and surgical authors into phlegmonous and erythematic. A phlegmon is an inflammation of a bright red colour of a regular circumscribed extent, and marked by a tendency to what is called the suppurative process. An erythema is characterised by a less deep colour, by its being superficial, and spreading rather than deep, or circumscribed, and by evincing a disposition to gangrene or mortification rather than to suppuration. On the surface also of parts affected by erythema, a watery fluid either oozes out from the pores of the skin, or is connected beneath the cuticle, and is productive of vesicular swelling. See *Erysipelas*.

The exciting cause as well as the texture implicated modifies the nature of the disorder. Rheumatic and ordinary inflammation, even when the habit of the individual is the same, and the texture involved the same also, will prove positively different in their characteristics. Thus the erythema of scarlet fever implicating the skin, that from hooping-cough involving the bronchial membrane, that from syphilis sometimes attacking one part and sometimes another, that from scrofula attacking as well as syphilis the lymphatic organization, have a difference beyond that which can be inferred from their mere locality; and although they may each and every one be at times erythematic, and at times phlegmonous, their varieties are not to be taken from these their external characters, but are to be sought for elsewhere. The most simple and the most general of causes that give rise to inflammation, especially in these kingdoms, are alternations of temperature, in other words, changes from heat to cold, and from cold to heat. We may here just remark that these changes principally engender local disorder, as they operate partially. It is extraordinary what a high measure of heat an individual may have, and go suddenly into a low temperature without any bad consequences; but if the heat or cold be applied to or abstracted from the body partially, then the inflammation of a part will soon be occasioned. Cold never injures unless followed by heat; but as in the case of the other transition a man heated by exercise under the grade of perspiration may plunge into a cold bath fearlessly, while the same individual would have local inflammation established by standing in a current of less cold air, so as to permit the cold thus to impinge on a part of the body. The mode of action in another, and a very common source of inflammation, viz., spirit drinking, will be found stated in the several articles relative to the effects of alcoholic liquors on the human body. Surgical authors following John Hunter, speak of adhesive, suppurative, and ulcerative inflammation; but as these different kinds have been pretty fully explained, especially *Adhesive Inflammation*, under their respective designations, all that is intended here is only a short united view of the subject. By the first, viz., adhesive, is meant those inflammatory conditions which are especially consequent upon accidents, and which give rise to a solution of continuity, as a wound is technically denominated, that is, when parts are divided an inflammation is set up in these parts, coagulable lymph is thrown out, new vessels shoot into it, and this re-union is effected by the communication of these new vessels with the old ones in this case, very little being demanded from the practitioner beyond watching and keeping these new shoots from transgressing due limits. The suppurative denotes that inflammation which if not speedily resolved, pours out pus or matter, which pus is often bounded by an adventitious membrane whose nature and mode of formation will be found explained in the article *Suppuration*.

The nature of our work and the explanations given under the various denominations of the terminations of inflammation, render it unnecessary that under this head we should pursue the subject further than by a reference to the three commonly described terminations of inflammation, viz., into resolution, suppuration, and gangrene, or mortification, or sloughing. On these our notices must be necessarily very circumscribed, seeing that it would only be a repetition of the information communicated in other articles. Resolution designates that recovery from the disorder which shall be effected without the intervention of any disorganizing process; that is, the exciting cause of the disorder being withdrawn, and repellents applied, and the antiphlogistic regimen adopted, the vessels will return to the condition in which they had been

prior to the deranged state. If, however, those positions be correct which make inflammation to differ from mere irritation or excitement, by virtue of a new action being set up, we shall perceive that to resolve or cure the malady in this most direct and simple manner, is not so simple or uncomplicated a process as the term would seem to imply. There must be a dispersion of newly formed parts, there must be absorption, that is, the results of the inflammation must be obviated as well as the perturbed action subdued. If we cannot resolve inflammation it must go on to suppuration or gangrene. On the suppurative process the opinions of the faculty were exceedingly vague till the time of John Hunter, and there is yet much darkness that hangs over the subject which we are happy to perceive is beginning to dissipate; recent inquiries and discoveries as to the nature and character of pus has already thrown a gleam of hope around the scene. Pott talked of the solid parts being melted down and formed into pus, and Cullen reiterated nearly the same sentiment, and it has been for some years, and is now the generally received opinion that pus is a secreted matter from the vessels pouring it out, and that this secreting power is imparted to those vessels by the changes which inflammation has given rise to. On the termination by gangrene the notions of pathologists were even more obscure than respecting suppuration, but the faculty are almost unanimously agreed in considering gangrene as a kind of local death from exhausted powers, and that the parts concerned in its production no longer obeying the stimulus of life, become disorganized, and by consequence the subjects of chemical change. See *Gangrene*.

As a practical conclusion to this already too extended article, (for our limits), we now address ourselves to the consideration of the symptoms denoting the termination of inflammation. As to the first termination in resolution, it is scarcely necessary to state that when both topical and systematic disturbance abate, pain is diminished, the pulse is reduced in frequency and becomes soft, the redness and tumour (should the disorder be on the outer parts of the body) decline, and every progressive change is, in a word, for the better. Of course, if the treatment and the disease combined have been so violent and active as to induce much subsequent debility, the system must be speedily restored by suitable diet and medicine, especially the former. The tendency, however, to suppuration is marked by the pain rather changing its character than abating, from being of a straightened stretching kind, or as if produced by distending power it becomes full and throbbing, while the pulse also becomes more full without being less frequent. Let every individual who takes even the charge of a common abscess recollect that this symptom is almost, we might say always, a constant accompaniment of the change under notice. Rigors are felt by the patient, which are more or less observable according to the extent of the inflammation, the texture it involves, and the nature of the invalid's constitution; indeed, certain symptoms of a suppurative termination. The treatment of this termination will be found under the head of *Brcast, Whitlow*.

Gangrene, or mortification, is denoted by the features of weakness and exhaustion becoming more fixed and conspicuous; but there is one most important particular necessary to bear in recollection, viz., the sudden cessation of pain in cases of violent inflammation of internal parts, whilst the pulse continues rapid and weak; for unless the practitioner be experienced and on his guard, he may be induced to regard that relief from pain as a favourable symptom, which is in reality the forerunner of a fatal termination. Early attention to this state of matters will often prevent a fatal result. 'Let,' says Dr Uwins, when treating of this subject, 'the young practitioner be always fearful of pronouncing his patient better merely because the pain has subsided. Let him attentively watch the pulsations, and if they be found running on with a celerity beyond the grade of health, let him be cautious in his prognosis; should this quickness increase and be followed by hiccough, the fatal termination of the disorder may be predicted with some degree of certainty.' We have frequently seen erroneous opinions formed at this crisis, and we therefore the more readily invite attention to the hints of Dr Uwins, a most accomplished practical physician, to whom we have been indebted for many valuable practical remarks on this and other topics. We insist the more on this particular, because, as we have already observed, we have had occasion to observe many mistaken anticipations both by patient and medical attendant, and many happy feelings on the part of either, which, alas! were to be exchanged for the death of the one, and the total discomfiture of the other. Never, then, we would reiterate, never be satisfied that resolution has taken place, and that things are proceeding kindly, while the pulse of the patient, instead of being restored to its healthy standard, is running on with celerity. Suspect suppuration when rigors or shivers occur; fear mortification when the pulse is exceedingly quick, and the pain has given way. The other specific terminations of inflammation will be found in their proper places with the appropriate treatment in such cases. Among other reasons for giving such an extended account of inflammation not only in this but other articles, we offer the pertinent remark of the late lamented Dr Armstrong, that 'as soon as a student had gained some correct ideas of

inflammation and all its effects, and occasional consequences, and then united to such information, some acquaintance with the character of a few organic diseases, he might be said to command a bird's eye view of disease in general;' such was the importance assigned by that eminent physician to the study of the phenomena of inflammation.

We therefore aim at a higher object than merely furnishing a code of mechanical instructions for the domestic management of disease, we wish to stir up a principle of curiosity and consequent inquiry into the laws of the animal economy in health and disease, and thus not only render the individuals and those with whom they are connected more useful, but more happy in the application of the knowledge, limited though it be, that they will attain by an attentive perusal and study of this volume. With these objects in view we therefore present them, in conclusion, with the few following remarks on the utility of inflammation as a proof that in many cases it may be rather considered as a salutary process than as a disease. The following then are a few of the illustrations of its usefulness as a mode of cure. Surgeons accomplish the radical cure of hydrocele by letting out the fluid collected in the tunica vaginalis of the testicle, and then exciting inflammation of that membrane by means of a stimulating injection, a seton or other plans acting on the same principle. Lymph is effused, and the cavity in which the water had accumulated is obliterated. Wens, or encysted tumours, warts, and some other extraneous growths, may be cured by purposely exciting a brisk degree of inflammation in them when they either undergo a gradual removal, or ulcerate, or slough away. That inflammation is often a salutary operation in the animal economy, is proved by its influence in preventing evils which would occasion either serious or fatal consequences. We shall adduce a few illustrations of its usefulness in preventing dangerous or fatal results. We frequently find it giving strength and thickness to serous membranes when they are the only parts intervening between large collections of matter, and the cavities of the chest and belly, into which such abscesses would otherwise pass and occasion dangerous consequences. We know also that it is of vast service in filling the cavities of the cellular tissue with coagulating lymph, so as to hinder the matter of abscesses from spreading so extensively as would happen without this provident disposition of things. Again we recognize the utility of inflammation when it forms a boundary for extraneous bodies, accidently lodged in the flesh surrounding them with a kind of cyst, in which they lie for a considerable time excluded as it were from the rest of the system without disturbance of it. We may likewise specify as a proof of the salutary effects of inflammation, its general efficiency in preventing effusion of the contents of the bowels, which without it would always follow wounds of those organs so as to bring on fatal inflammation of the peritoneum. Hence it has a most desirable effect either by glueing the wounded bowel to the neighbouring ones so as to hinder effusion of the fecal matter, or to the part of the peritoneum close to the inner orifice of the wound in the parieties of the abdomen, so that whatever matter escapes from the intestine does not pass into the cavity of the belly, where it would cause as rapid and often fatal inflammation, but is transmitted outwards through the external wound itself. 'Inflammation,' however, says that excellent teacher, Professor S. Cooper, is only to be regarded as a salutary process, when moderate in degree, for if it occur with violence many severe and dangerous consequences may follow.' This indeed, is sufficiently illustrated in the history of almost every inflammatory disease.

In conclusion, the phenomena of inflammation is one of the most interesting subjects of investigation, and one which in all its shades and varieties should be familiar to every medical, and especially every surgical practitioner, who has any sense of the heavy load of moral responsibility which is imposed on those who profess to act as the medical advisers of their fellow-men. The study of this subject is not without its interest to the philosophical inquirer and the Christian philanthropist, and as a source of encouragement for such to pursue the investigation, we may remind them that the best treatise ever written or published on the subject, was from the pen of one who did not enter on the study till he had attained the age of manhood, and had worked for some time at a mechanical trade. We mean the celebrated John Hunter, an honour to his country and a blessing to the world.

With regard to the general treatment of acute inflammation, it may be stated, in a few words, to consist in free depletion by means of local and general blood-letting; the use of those medicines which diminish the force and frequency of the pulse, such as antimonials and digitalis, and those medicines which restore the natural secretions, as cooling laxatives, diaphoretics, the warm bath, and combined with low diet and perfect quietude. For more particular directions as regards treatment, see the articles on *Inflammation* of the various organs treated of throughout the work.

INFLUENZA. This disease, to which now, by the common consent of the faculty, the term influenza is affixed, has at different periods, especially since the year 1762, 1775, and 1782, performed the tour of Europe, and even paid an occasional visit to our Asiatic dominions,

and to the exclusive empire of China. In the third volume of the Medical Transactions published by the college of physicians of London, may be seen the best account of influenza in the year 1782, drawn up by a committee of the fellows, from a large number of communications which had been invited from all parts of the kingdom. The same paper contains some notice of similar disorders felt at different and distant times, and there is always some advantage to be derived from a collection of facts fairly detailed. It is, indeed, the only way of coming to any sure conclusion on medical subjects, and keeping clear of prejudice and error. So because this late epidemic (1837) occurred at a time of the year when catarrhs and coughs are always very common, it might have been supposed that the influenza was but a modification of the same general effects; but the former occurrence of these disorders effectually undeceives us by the assurance that at other times they have happened in June. It was in this month that it spread in 1767, after a season colder than usual. But again in 1782, it occurred in the same month after great heat. In some instances it has been traced from south to north; its progress this year (1837) appears to have been from north to south, for it was prevalent in Britain in January, and did not appear in Portugal till two or three months later. Like all preceding epidemics, the year 1837 exhibited various degrees of morbid affection having been in some instances so slight as not to incapacitate persons from continuing their ordinary occupations and pursuits, and scarcely to require the aid of medicine, whilst in others the attack has been of such a malignant nature as to endanger and even destroy life, and in many parts of the three kingdoms, particularly in London and Glasgow, great numbers of the aged and infirm fell victims to the malady.

The prominent features of the influenza seem in all instances to have been sufficiently alike to identify the disease, though sometimes one symptom and sometimes another may have been more conspicuous. This catarrh, cough, and fever, have been common to all; but in some the catarrhal affections, in some the cough, and in others the fever, has been more severe. Accordingly, pains about the chest, or pains of the head, or of the limbs, have been more or less prevalent in different seasons, but at all times the disorder has been followed by a great degree of languor. But to be more particular, the following may be regarded as its most frequent mode of attack. After some alterations of chilliness and heat, the patient is seized with a heaviness or pain of the head, with sneezing, wateriness of the eyes, hoarseness, and cough. The symptoms come on in the order here stated. In the course of a few hours the headache increases, the skin becomes hot, with a pain in the back and limbs, or transitory stitches across the chest. The tongue is white, and the pulse quick or frequent, and for the most part soft. There is more or less sickness at the stomach, and sometimes vomiting. The bowels are generally costive, and considerable uneasiness, often amounting to great pain, is felt in some part of the abdomen. By the second or third night the cough and fever become greatly aggravated. The former, viz., the cough, is strong, incessant, sometimes dry; but generally accompanied, even at its first coming on, with an expectoration of thin sharp mucus; the latter, viz., the fever, is attended with increased heat, and with extreme restlessness and anxiety. There is also some confusion of the head at this time; the pulse is often from 100 to 120. In the mornings there is a considerable remission of the febrile symptoms, but the cough still continues urgent, and the patient complains of excessive languor and dejection of spirits.

After the third or fourth day, where early perspirations have come on, or sufficient evacuations have been procured by the bowels, the fever declines, and although the cough continues, the expectoration is more free, the sputum being of a thicker consistence and milder quality. The urine, which before was high coloured and clear, now becomes turbid, or throws down a sediment. In other instances the cough goes off without any remarkable degree of expectoration. The lassitude and depression of spirits, with restless nights, harrass the patient for many days after the decline of fever, which indeed, in several instances, does not entirely go off after the fifth day, but becomes intermittent, the patient feeling himself worse every other day. Such are the most common forms of this epidemic. Its modifications, however, as we have before observed, are extremely numerous, so that in some there is violent headache, with little catarrhal affection, as already stated, in others a sore throat, in others a peripneumonic condition, and in others a disordered state of the stomach and bowels. The above description, for which we have in a great measure been indebted to the publications of Dr Heberden, and the now venerable Dr Richard Pearson's publications on this disease, is sufficiently clear and accurate to exhibit the genuine form of the disease, unmixed with the symptoms of any other disease or morbid tendency which may happen to be present at the time of attack. The swelling of the eyelids, and the swelling of the conjunctiva, are symptoms that deserve particular attention, as they have been in several instances the most marked, and sometimes the only characteristic symptoms of the epidemic. We have seen no disease in which the same languor is experienced, except it be in cases of scurvy, where the aversion as well as the ina-

bility to move is scarcely overcome even under the influence of a strong exciting motive; and this was exemplified in the epidemic of 1837, even when it was very moderate, and the patient not confined to bed. There is no doubt that the influenza arises from a peculiar state of the atmosphere, and excites various inflammations according to the predispositions of those whom it attacks. Some contend that the electrical state of the atmosphere has great influence on the disease, and there is no doubt that electrical influence has great power on the body; but its *modus operandi* is at present little understood.

With respect to the *treatment* of influenza, some shade of difference existed among the faculty, especially in London last year, as to the employment of blood-letting and other depleting remedies; one party contending that bleeding was seldom required, and that in the cases of the aged and delicate it never failed to do great injury to the patient, while another party contended as strenuously for bleeding, insisting that there were very few cases of the disease in which it was not required, and that many had died because the remedy was not employed. Truth in this case, as in almost every other, most probably lies in the middle course; and it is not to the discussions of medical societies, where parties have distinct and opposite interests in view, and deliver their opinions often in the warmth of debate, that we are to look for the best information on such a subject. There is no doubt where inflammation of any organ is evident from the symptoms, severe pain, and all the other symptoms of inflammation, and the patient of a full habit, bleeding is certainly necessary, especially when symptoms of pneumonia, or inflammation of the lungs, or their covering, the pleura, are present. Pleurisy indeed, sometimes accompanies influenza, and when this is the case, there is a hard pulse, pain of the side of the chest, for the most part pungent, with difficulty of lying on the side in which the pain is felt, which is always increased by inspiration. Indeed, when the pleura rather than the substance of the lungs is inflamed the feverish irritation is often more strongly marked, the topical pain sharper, and the breathing much more straitened and difficult, the patient crying out with distress when desired to take a full inspiration. These symptoms being present and conjoined with some of the distinguishing symptoms of influenza, who would hesitate to bleed, and that very freely? In this case we would proceed as if the patient were labouring under pleurisy alone, we would bleed, purge, and apply a blister, or a very large mustard cataplasm, fully the size of our page, to the pained part. The purgative we would prefer is three grains of calomel, and the same quantity of James's powder every two hours, and the third part of a mixture composed of one ounce of Epsom salts, and one grain of emetic tartar at the same time. This practice could scarcely fail of affording relief. But if after a free bleeding, and the cataplasm being allowed to remain on for an hour, and two doses of the calomel, followed by the saline mixture, no relief is obtained, a blister of flies, with the surface covered with thin linen or mull muslin, is to be applied on the same part, and of the same size as that from which the cataplasm that was removed. From the tender state of the surface the blister will take effect in four or it may be two hours, perhaps less time, and should then be removed. If the disease proves obstinate and has refused to yield to the three powders and salts, &c., it will then be necessary to take away more blood from the arm.

If these means succeed in removing the pleuritic symptoms, viz., the pain in the side, and the painful, straitened, and difficult breathing, the following draught may be administered at bed time:—Twenty drops of each of the tinctures of henbane, lactucarium, and twelve drops of tincture of foxglove; one dram of tincture of squills; half an ounce of simple syrup; and half a wineglass of water. The feet and legs should be immersed in warm water for fifteen minutes, keeping up the temperature, and be afterwards well dried. Indeed, this should be done at the very commencement, as soon as blood has been drawn, and a pair of clean dry woollen stockings put on. The draught will most likely procure a sound sleep, and the patient will awake free of pain, but suffering from languor and lassitude. The blistered surface will of course be attended to as directed under the article *Blisters*. The febrile or feverish symptoms, and those characteristic of influenza, may however remain in a greater or less degree, and the following mixture should be taken in doses of two large table spoonfuls every two hours:

The water of acetated ammonia, ten ounces.
Sweet spirits of nitre,
Antimonial wine, each half an ounce.
Simple syrup, two ounces.

Give two of the following pills at bed time:

Calomel and James's powder, each five grains.
Powdered opium, one grain.
Extract of hyosciamus or henbane, ten grains.
Mix intimately, and divide into four equal pills.

This treatment should be followed for two or three days, the patient drinking freely of thin, well-boiled warm gruel or barley water. When the feverish symptoms abate, if the cough still continue, the draught ordered above of the tinctures of henbane, lactucarium, opium, squills, and syrup, may be taken at bed time, and half a wine glassful of the annexed mixture every three or four hours during the day:

Mucilage of gum Arabic, eight ounces.
Syrup of squills, two ounces.
Water, six ounces. Mix.

When, therefore, inflammation is present, whether it be pleurisy or of any other kind, it should be met with moderate blood-letting; but there is no kind of inflammatory disease connected with influenza that requires bleeding to be practised so freely as does any inflammatory state of the lungs or the pleura.

Supposing a case, however, in which there is no active inflammation present—and cases of this kind are most numerous—what is to be done? The patient appears as if labouring under a severe cold, and most of the symptoms characteristic of influenza are present, especially the febrile irritation. In such a case we would reason and proceed, considering the degree of fever present as constituting the essence of the disease, our first attention should be directed to it, and not to the cough, (except when it is accompanied, as already supposed, with a true pleurisy) otherwise by prescribing for only one of its symptoms, we shall make but little impression upon the general morbid affection. This is the opinion of Dr Pearson, and in it we most heartily concur. Pectoral remedies are not at first to be resorted to, but in some cases, especially where the stomach is affected, we should begin with a gentle emetic composed of fifteen grains of ipecacuhan, and one grain of emetic tartar, and mercurial and antimonial cathartics, as the combination of calomel and James's powder, as prescribed above, assisted by the solution of Epsom salts, also in the previous form and doses. The calomel and antimony (for James's powder is an antimonial) seldom fail speedily to procure general diaphoresis, which relieves the symptoms of general fever, but not the cough. This latter and the difficult respiration or breathing sometimes require the application of a blister, to which may be joined the use of the mixture of the acetated water of ammonia, as already prescribed. After the bowels have been opened, opiates afford relief, but they must be given in very sparing doses.

A solution of cream of tartar, or cream of tartar mixed with the barley water, or lemon juice added, forms a very excellent drink, which should be freely used, especially if a blister has been applied. In the decline of the disorder, when the cough is still troublesome, the mucilaginous mixture with syrup of squills will be found highly useful; but oily medicines, and pectoral emulsions of spermaceti, &c., are improper. Great benefit will be derived from an enema of castor oil and turpentine, especially in the morning after the draught or pills have been taken at bed time. The languor, dejection of spirits, and debility left by this epidemic, are so considerable, that after the second or third day, all attempts to keep up the sweating process should be avoided. The patient should sit out of bed, and the room be kept not what we would precisely call cool, but well ventilated. During convalescence, which is often very slow, half a wine glass of compound infusion of gentian may be taken three times a day, and if the bowels are sluggish, two drams of powdered rhubarb, half a dram of powdered ginger, and three drams of sulphate of potash, are to be most diligently and intimately rubbed together in a Wedgewood mortar, and then divided into four equal powders, one of which is to be taken in a small cup of thin gruel every second night. If the infusion of gentian is disliked, from fifteen to twenty or more of the aromatic liquid drops with quinine may be substituted, and taken three times a day in a large wine glass of cold water.

The diet should be thin, light, and mostly vegetable. Chicken broth, with rice or Carragaheen moss, arrow root, sago, &c., are the principal articles of diet, while the cough and any of the febrile symptoms remain, and when they are gone, a more liberal diet may be allowed. Did our limits permit, we might follow this epidemic in its late marches throughout the globe, but the length to which this article has already extended forbids the attempt. Suffice it to say, that it visited China, the Manillas, Russia, France, Spain, Portugal, and Great Britain and Ireland, at various seasons of the year, and that in every one of those countries there was some peculiarity attendant on the disease. In some of them venesection was nearly always required, and sometimes necessary to repeat it. After general bleeding, local depletion by cupping along the spine, especially the lumbar and dorsal vertebræ, was exceedingly useful in relieving oppression of the chest when it was present, or the rheumatic affection of the limbs. Cups to the back of the neck relieved the cerebral system. Gum water, rice water, lemonade and the like for sole diet, and mild laxatives, have for the most part completed the cure. Treated upon the general principles we have assumed in the course of this article, patients have nearly always speedily convalesced, and their recovery has been complete. When, on the contrary, active depletion has been neglected at the commencement, when the pleura and lungs were inflamed, the case has frequently terminated fatally, although there is little doubt that many aged and infirm patients suffered from carrying depleting measures, especially general blood-letting, too far. To do the advocates of blood-letting every justice, there is no doubt if the want of venesection did not carry off the patient, that enlargement of some of the viscera, particularly of the lungs, have taken place, and the foundation has been laid for incurable disease of the lungs. We trust that those who read attentively and study with care the preceding account of influenza, will be better qualified to treat themselves or their families next time it makes its appearance.

INFUSIONS. The process of infusion or maceration, for in many and indeed in most cases they are synonymous, consists in reducing the substance to be infused, especially when it is hard or bulky, into a coarse powder, or cut in small portions, placing it in a proper vessel, and pouring on it either hot or cold water or other liquid, according to circumstances. Infusion is preferable to decoction in extracting the virtues of aromatic and volatile substances, which would be dissipated by decoction. When water, however, at a high temperature, or at 212° is employed, it extracts the gum, sugar, extractive tannin, saline matters, and a portion of the essential oil, and of the resinous matter of vegetables, and in this case the infusion can differ very little from decoction. The active principles of many plants may be extracted by cold water, and is more grateful than when boiling water is employed, although the latter is in most cases more active. As infusions will not keep longer than twenty-four hours unless spirit is added, no more should be prepared at a time than will suffice for that period. Infusions require to be frequently agitated or stirred about, and should be strained before they are used.

The only difference between maceration and infusion is, that the former is longer continued, and can only be employed for substances that do not easily ferment or spoil, and hence in the making of tinctures, which are in most cases spirituous infusions, the substances are ordered to be macerated. The formula for the different infusions will be found under their respective heads; as for example, the infusion of gentian under *Gentian*, and of senna under *Senna*, &c.

INHALATION. When perfumes of certain substances, or the steam of medicated fluids, are taken into the mouth by suction, they are said to be inhaled. From the state of minute division which the particles of some bodies undergo when acted on by heat, they are thus immediately applied to organs which they otherwise could not directly reach; as for example, the air passages and their ramifications in the lungs. It is on this principle that inhaling the vapour of tar is recommended in cases of chronic pulmonary disease, and the smoking of narcotic herbs for the relief of asthma may also be regarded as a modification of the same process. In domestic practice, inhalation is principally used in cases of catarrhal affections, sore throat, incipient croup, &c. In the inflammatory stage of sore throat, it is by far the best local application which can be used, as in such cases the application of stimulating gargles, and even the degree of increased excitement of the parts consequent on their frequent motion in performing the act of gargling, must evidently rather increase than diminish the existing disease. Whilst inhaling the steam of warm water, or warm vinegar and water, directly allays the irritation in the same way as warm fomentations applied to an inflamed external part. In catarrhal affections they allay irritation, or if certain medicated fluids, as warm vinegar and water with a few grains of camphor be used, they promote expectoration. Instruments called inhalers are used for this purpose, but inhaling from the spout of a common tea or coffee pot, or a small bowl with an inverted funnel, will be found to answer the purpose very well.

INJECTIONS have generally been defined medicated liquors, to be thrown into different cavities of the body, by a syringe or other instrument; as into the urethra in cases of gleet or gonorrhæa, into the bladder for dissolving stone or washing it out, and into the vagina in females in various cases of disease, likewise into the rectum in cases of ulceration. Injections are likewise used to inject or wash out unnatural or diseased cavities, as the fistula in ano, and other fistulous sores, the effects of disease, and to stimulate the cavity of the sac surrounding the testicles, so as to unite its sides by a healthy inflammation after the fluid formed in hydrocele or dropsy of the testicle has been drawn off. The stomach is likewise filled or injected with warm water or other fluid to dilute its contents in cases of poisoning, that they may the more easily be drawn off. Enemas or enemata differ from injections (although the terms are synonymous in some quarters of Scotland, and where the terms an enema, clyster, and injection, are understood as signifying the same operation) in that they are employed not only to convey medicine but food into the system, and they are only introduced by the rectum. (See *Enema*.) In our plates of surgical instruments, &c., the figure of a syringe, and likewise a stomach and enema apparatus, may be seen as employed in injecting and emptying the stomach.

The following are a few of the most approved formulæ used as injections:

1. Sulphate of zinc, two scruples.
   Rose, distilled, or pure rain water, eight ounces.
   Mix, and form an injection.
2. Sugar of lead, one scruple.
   Sulphate of zinc, ten grains.
   Distilled water as in the last, eight ounces.
   Mix, and make an injection.

As in this case a precipitate will fall to the bottom, the clear liquor must be poured off as soon as the solution settles.

3. Alum, one dram.
   Rose or distilled water, four ounces.
   Mix, and make an injection.
4. Decoction of oak bark, one pint, (see *Oak Bark*.)
   Alum, half an ounce. Mix.

These four are all examples of astringent injections; the first three are used in fistulas, gleets, and gonorrhæa, and the fourth in relaxations of the rectum or vagina, or in profuse discharges from these parts.

5. Bals. copaiba, two drams.
Mucilage of gum Arabic, half an ounce.
Lime water, six ounces.

First rub the balsam and mucilage together by gradually adding the balsam, and at the same time continuing the rubbing till they are incorporated, then gradually add the lime water in the same way, and form an injection. This was a favourite formula of the late Mr Abernethy in ulcerations of the rectum, urethra, or vagina; and John Hunter used a similar injection, only substituting rose or distilled water for the lime water.

6. Oil of sweet almonds, four ounces.
The liquor of subacetate of lead, or Goulard's extract of lead, thirty drops.
Mix well by shaking in a vial.

7. The infusion of lintseed or flaxseed tea, six ounces.
Wine of opium, thirty-five drops. Mix.

Both these last, 6 and 7, are prescriptions of Mr Pearson's, late surgeon of the Lock Hospital, and were used by him; the first in the inflammatory stage of gonorrhæa, as a cooling oily injection, and is indeed an excellent formula; and the other in gonorrhæa with heat of urine and pain.

8. Prepared white lead, (the carbonate) one dram.
Compound powder of tragacanth, two drams.
Powder of opium, one scruple.

Mix the powders together, and gradually add one pint of boiling water, continuing the rubbing till they form a uniform mixture. This should be filtered through a bit of thin mull muslin, and shaken when used. It is ordered by Mr Lawrence in the commencement of gonorrhæa.

These few may suffice to show the nature of the preparations used as injections for various purposes. Rose water has no superiority over distilled or rain water, collected in an open place at a distance from a smoky town, and which falls in a vessel placed a little distance from a house; but as distilled water may be always had for a mere trifle, it is to be preferred, and in some cases a little rose water added for sake of the flavour. The point of the syringe used for injections should be dipt in warm water, and afterwards in oil or lard. It enters more easily, and care should be taken never to press with the syringe against the part, but hold the syringe so that any pressure that is made may be against the thumb and index finger of the left hand of the operator. In cold weather, the chill may be taken off the injection by dipping the vial that contains it in warm water, before pouring out what is to be used on the occasion.

INOCULATION means the insertion of a small quantity of some morbid matter beneath the cuticle, so that it shall be carried into the system by the absorbents of the part, producing a specific disease according to the nature of the matter so inserted. Although the bite of a serpent, dissection wounds, and in short the introduction of any virus into the system, is, strictly speaking, inoculation, the term, as generally understood, means the introduction of the virus of some specific disease for the purpose of producing a similar one in the individual inoculated, such as inoculating with small-pox or cow-pox matter, the latter of which is termed vaccination. Inoculation with small-pox matter is now deservedly condemned, for it is by no means a more certain preventative than vaccination; and although by choosing the proper time for doing it, and previously preparing the child or person to be inoculated, by means of medicine and regimen, it may be attended with but little risk to them. It is by no means equally safe to their neighbours, as another person may be affected with small-pox in a most malignant character, from a case where the disease is present in its mildest form. See *Vaccination*.

INOSCULATION OR ANASTOMOSIS, is an anatomical term meaning the communications of blood-vessels with each other.

INTOXICATION. The meaning of this term is only too well understood, and the phenomena of intoxication so well known, as to require no description here. Under the article *Delirium Tremens* we have given an outline of the effects of habitual intoxication. All that we intend to do under the present head is, to point out the measures to be pursued in extreme cases of intoxication, where immediate medical aid may be required, for we would not so far insult our readers as to suppose them ever to stand in need of remedies for intemperance. But suppose a case where a person is found in a state of complete insensibility from intoxication, (the general symptoms resemble those of poisoning by narcotics, but the history of the case and the smell of the breath will assist in forming our opinion.) The first step is to loose all articles of dress, particularly about the neck, and apply vinegar and cold water to the temples and forehead; and a sponge dipt in strong vinegar should be frequently applied to the lips and nose. If the patient be able to swallow a brisk emetic, such as fifteen grains of sulphate of zinc should be administered; but otherwise the stomach pump, if there be any one at hand who can apply it, should be used, and a stimulating clyster should be thrown up the bowels, heat applied to the feet, and a sinapism over the region of the stomach. If the person be of a full plethoric habit, and if there be much lividity of the countenance, and the veins of the neck are swollen, blood may be drawn from the arm with the best effects, but in all cases of this nature great caution should be observed; and the general doctrines inculcated when treating of delirium tremens should be kept in view, as habitual drunkards are seldom able to bear active depletion.

INTUS SUSCEPTION, signifies that one part of the intestinal tube is drawn or received

within another portion, as into a sheath, the received portion being thereby strangulated. The symptoms are the same as those of the worst form of iliac passion, and the method of treatment will be found detailed under that head.

IODINE. Iodine was discovered by M. Coutrois, a manufacturer of saltpetre in France, while endeavouring to ascertain the cause of erosion of the iron vessels employed in the process for extracting alkaline matter from kelp. He gave some of it to Clement, who examined it, and read an account of it to the French Institute in 1813. Its properties were afterwards more fully investigated by Gay Lussac and Vauquelin, and by Sir H. Davy.

'It has received its name from a Greek word signifying violaceous, from the beautiful violet colour of its vapour. It is always procured from kelp, the product of combustion of seaweed, in which it exists in unison with hydrogen, in the form of what is termed hydriodic acid.' *Fyfe.*

Iodine exists in the form of small thin scales, of a brownish black colour and metallic splendour. It has a pungent disagreeable odour and acrid taste; when put upon the skin it leaves a brown stain, but which disappears in a short time. Iodine is only sparingly soluble in water, requiring about 7000 parts at a natural temperature. The solution is of a brown colour, and possesses the peculiar smell of iodine. When a small quantity of iodine is put into a glass flask and exposed to heat, it melts at 225° Fah. and at 350° passes into the state of vapour of a beautiful violet blue, which condenses into crystals on the cool part of the apparatus. Although iodine is always prepared from kelp, it is also found in sea water, and in different marine productions, as sponge, coral, &c. In medicine it is principally used for the cure of scrofulous diseases, and the discussion of glandular swellings. Formerly burnt sponge was in great favour with the profession for the cure of these diseases, but had latterly fallen into disrepute, when the discovery of iodine in that substance showed in what its virtues consisted. The forms in which iodine is used are—the tincture and ointment. The dose of the former is ten drops a-day in gum water or syrups, but for internal use, the preparation of potass, called the hydriodate of potass, is more usually prescribed. (See *Pharmacopeia.*) Neither of these, however, are medicines which ought to be entrusted to the family practitioner, for when given in certain states of the body, or when too long continued, it may produce violent and dangerous effects.

The ointment is made with two scruples of iodine rubbed up with alcohol, to 1 oz. of hog's lard, and requires to be well and carefully mixed. The ointment of hydriodate of potass, however, is more easily prepared, and consists of one dram of the salt to three drams of lard. A bit the size of a bean of either of these ointments may be rubbed over the tumour night and morning. The addition of camphor to the ointment will be found an improvement; chronic glandular swellings, or scrofulous swellings of joints, often rapidly diminish under its use. The presence of iodine in any substance may be detected by adding a solution of starch to a solution of the suspected substance; if the iodine be in an uncombined form, a blue precipitate will be formed; and so delicate is this test, that the fluid will acquire a blue tinge, though it does not contain more than 1-450,000th part of iodine. If the iodine is in combination with any base, the use of a drop of sulphuric acid will assist its detection, by decomposing the salt of iodine, and combining with the base, whilst the iodine thus set free acts on the solution of the starch.

IPECACUANHA, or *Ipecacuanha Radix.* In Ireland this well known article of the materia medica is most generally known by the name of hippo, and in the language of the South American Indians, the word ipecacuanha means vomiting root. There are several varieties of the root imported, although no distinction is made by the retail apothecary or druggist when the article is called for in the shops. Writers on the materia medica have especially noticed three, viz., the ash coloured, the brown, and the white or woody variety. The two first of these are small, wrinkled, bent, and contorted roots; the brown being more wrinkled than the ash coloured, while the white is without any wrinkles. Although all these varieties differ in their effects, as emetics, some of them operating in larger, and others in smaller doses; yet, as we have already stated, no distinction is made in the shops, as the article is most generally sold in the form of powder, produced in general from a mixture of the three varieties, all of which contain a peculiar principle denominated emitine, in which their emetic quality resides. The primary action of ipecacuanha is that of a direct emetic, acting speedily but mildly on the stomach, and effectually evacuating its contents, without producing any dangerous or disagreeable symptoms. Its usual dose in powder to an adult is one scruple, and it may be given in plain water. If given in small doses, it gently stimulates the stomach and increases the appetite, and it is frequently administered in cases of indigestion, in doses of from one to four or five grains in the form of pills, or taken in jelly or marmalade on an empty stomach, fasting for at least an hour after. Under peculiar circumstances, it may be directed to the bowels, and in combination with opium, as in Dover's powder, a medicine which is frequently prescribed in the course of this work, and which acts as a powerful sudorific or diaphoretic. In fine, ipe-

cacuanha is one of the most valuable articles either singly or as directed in the annexed preparations, that can enter into a family medicine chest.

Wine of Ipecacuanha.

Ipecacuhan root bruised, one ounce.
Sherry wine, one pint.
Macerate for ten days, and filter through blotting paper.

This wine forms a very safe and mild emetic, in doses of an ounce to an adult, and the dose varying according to the age and strength of the patient. The only other preparation of this medicine ordered by the colleges is the compound powder of ipecacuanha, more generally known by the name of Dover's powder, and the prescription for the preparation will be found under that head. (See *Dover's Powder.*) It would only be repeating what we have stated in other articles to enumerate all the diseases in which this valuable drug is employed. We may, however, remark, that unless the sherry wine is very good, the wine is apt to ferment, especially in a warm climate or in a warm apartment. To prevent this, instead of using one pint of wine as above directed, it is better to employ fifteen ounces of wine, and one ounce of brandy or good proof spirits, and with this addition, the preparation will keep longer, and retain its virtues.

IPECACUANHA SPUNGE, or *Euphorbia Ipecacuanha.* The root of this plant is officinal in the United States' pharmacopeia. It has a sweetish taste, and its components are caoutchouc, resin, mucus, and fæcula, and operates as an emetic and cathartic, and is therefore a most valuable medicine in all those cases where these operations are indicated. It produces full vomiting in doses of from ten to fifteen grains.

IRIS. See *Eye, Anatomy of.*

IRON or *Ferrum.* This most valuable of all the metals, in contributing to the civilization, comfort, and general happiness of society, has long occupied a conspicuous place in the materia medica, and is found to exert a most beneficial influence on the human body in some states of disease. It is the most generally diffused of all the metallic bodies, and enters into the composition not only of a vast variety of minerals, but also of many organized substances. It is said to be the only metal, the operation of which on the body is said to be essentially salutary, for although there are others that, under certain circumstances, form valuable medicines, yet when taken in any considerable quantity, they all seem to be decidedly deleterious. Iron is employed under various forms, either uncombined with any other substances, in a state of mere mechanical division united to oxygen as a protoxide or a peroxide, or in combination with some of the acids, as the carbonic, the sulphuric, the muriatic, the acetic, and the tartaric. Its action is probably not essentially dissimilar in all these different preparations, so we may suppose that the apparent differences between them principally depend upon their degree of concentration, or their comparative solubility in the stomach. When iron is taken in the pure state, it would appear to be inert, unless it meets with an acid in the digestive organs, so that this must be an uncertain, and therefore an improper method of administering it. The peroxide, for the same reason, is objectionable, as it is probably nearly insoluble in the animal fluids in their ordinary state. The protoxide is a more active form, and when we wish to go through a gentle but long-continued course of the medicine, this or its combinations, with some of the weaker acids, as the carbonic or tartaric, will be found the most useful preparation. In reference to the general effects of iron on the system, there is no doubt its primary action is that of a powerful tonic, and to this perhaps all its other effects may be referred. After it has been given for some time, it increases the energy of the arterial system, produces a florid complexion, and a sensation of heat in the skin, and generally increases all the excretions and secretions. It has the effect of giving a black colour to the fæces; some think that this is owing to the superfluous iron which is mixed with the contents of the alimentary canal, and which has never entered or produced any effect on the system, but this conjecture is without foundation. Iron is generally thought to be injurious when the body possesses a tendency to inflammatory action, or even to a state of vascular repletion. It is said, and with some truth, under these circumstances, to give rise to headache, spasms of the stomach, cough, and hemorrhages of various kinds. These effects, however, have been frequently exaggerated by those who had particular views respecting its action on the system, and its value as a remedial agent. The preparations of iron ordered by the colleges are the following: purified filings of iron are ordered to be procured by the Edinburgh college, by placing a seive over the filings, and applying a magnet, so that the filings may be attracted upwards through the seive. This may be necessary where the filings are mixed, as in work-shops, with solder and other metals, but an abundance of very pure filings may be procured almost gratuitously at the workshop of any reed maker, when flattening and smoothing the wire for steel reeds. The magnet, indeed, when applied to the iron scales at the foot of a blacksmith's anvil will only attract the pure and finer filings; but a sufficiency for medical purposes may be easily procured from metal reed makers in any manufacturing town. The mode directed for preparing these scales is to reduce them to a fine powder, the dose of which is from five grains to a scruple, mixed with any aromatic powder, or in an

electuary in honey or jelly. They are likewise formed into a confection by the confectioners, and sold as steel comfits, or by the very inappropriate name of steel carvies, as they resemble the smaller size of confected carraway seeds. This is a very uncertain medicine, for the reasons above stated, as, if it meets with no acid, it proves quite inert. It is, however, sometimes given as a tonic, and the confected filings as a worm medicine to children.

The next preparation is the sub-carbonate of iron. It is prepared by moistening the purified filings frequently with water, that they may be converted into rust, which is to be ground into an impalpable powder, in an iron or Wedgewood mortar. This simple preparation, which may be prepared by any intelligent individual, is one of the most valuable preparations of iron. It is prepared under the name of the precipitated carbonate by a more elaborate process, but as a medicine is by no means superior to the fine rust. The rust is sometimes washed with water, and any foreign substance that floats with the water poured off, and then the fine powder is dried on blotting paper, and afterwards kept in a bottle. There is, however, no necessity for this process where the filings have been collected pure, and kept free of dust and other impurities. The rust or sub-carbonate thus prepared is composed of red oxide of iron and carbonic acid, and has a reddish brown colour, with a styptic taste, and is quite inodorous. It possesses the general qualities of the metal in high perfection, being attenuant, emenagogue, and tonic. It is given in doses of from two grains to a scruple, gradually increasing the dose, and is united with myrrh, bitters, aromatics, and other medicines, as will be found directed under the head of those diseases in which it is employed, and enters into the composition of other preparations of the same metal. It is particularly useful in tic doloreux, cancer, chlorosis, dyspepsia, and debility from various causes. Cullen, no mean authority, was of opinion that the simple preparation of iron was equal to the other preparations of iron, and that the stomach bore it better. The precipitated carbonate of iron is somewhat similar in appearance, only having a clearer reddish brown, and a smoother feel. It is used for the same purposes, and in the same doses.

The sulphate of iron is procured by dissolving the purified iron filings in diluted sulphuric acid, evaporating the solution, and allowing crystals to form. The crystals are of a light green, and transparent rhomboidal prisms, soluble in two parts of water, and effloresce in the air. In taste, smell, and virtues, this preparation resembles the preceding, and is given in doses of from one to five grains combined with gum, ammoniacum, myrrh, or bitter extracts, and in the form of enema against ascarides, in the small thread worm, a dram being dissolved in from four to six ounces of water.

The sulphate of iron of commerce, better known by the names of green vitriol or copperas, and so extensively employed in dyeing, ink-making, and other arts, is commonly obtained by the spontaneous oxidizement of sulphurated iron and subsequent lixiveation and crystallization. It is never pure, and often contains zinc or copper, and should never be used in medicine unless purified; indeed, it cannot be procured perfectly pure, except by the direct union of sulphuric acid and iron. This we have so little charity to believe is a precaution in fact little regarded by many retail druggists and apothecaries, who substitute the common copperas for the pure sulphate. The two are, however, easily distinguished, as the pure crystals are entirely free of any brown discolourization, and the surface is a smooth, clear, shining, light green.

The dried sulphate of iron is prepared by exposing the crystals to the action of a moderate heat in an unglazed earthen vessel, or on a piece of thin brick or tyle until it become white and perfectly dry. It may then be reduced to a fine powder, and kept in a stoppered or well corked bottle. This we conceive to be a very useful preparation of iron, and more convenient for forming into pills than the crystals. By roasting, the crystals are merely deprived of their water of crystallization. It may be taken in larger doses than the undried crystals, from five grains to half a dram, or even a dram, by gradually increasing the dose.

Red oxide of iron is prepared by exposing the dried sulphate of iron gradually to an intense heat, until it is converted into a very red substance. This preparation is seldom used; it should be excluded from the air. The dose is from five to ten grains, and is used in the same cases as the rust.

Ammoniated iron is prepared by combining the sub-carbonate of iron with the muriate of ammonia, subliming with a quick fire, and reducing to powder. This preparation should have a deep orange colour, a saffron odour, and deliquesce in the air. It should, therefore, be kept in well stopt bottles. This is a very favourite preparation with many physicians in hysterical and hypochondriacal cases; it is highly apperient and attenuating. From two or three grains to ten or fifteen, concealed in jelly, honey, or jam, may be taken twice or thrice a day.

Tartrate of potass and iron, or tartarized iron, is formed by the union of super-tartrate of potash (cream of tartar) and iron filings with water; the solution is evaporated, and the dried mixture powdered, &c., kept in well stopt bottles. This is one of the mildest salts of iron, and so palatable that children will take it

without much reluctance. It is tonic and deobstruent, and in doses of from five grains to thirty twice a day, gradually increasing the dose. It may be given with advantage to scrofulous rickety children.

The above are the principal dry preparations of this metal ordered by the colleges. The following are the liquid forms in which it is ordered to be kept in the shops:

Muriated Tincture of Iron, or *the Tincture of Muriate of Iron.*

Sub-carbonate of iron, half a pound.
Muriatic acid, a pint.
Rectified spirit, three pints.

Pour the acid upon the sub-carbonate in a glass vessel, and shake it occasionally for three days. Set it aside that the dregs, if any, may subside. Pour off the clear liquor, and add to it the spirit. There are three different formulæ by the three different colleges; the above is the London. Pity it is that pride and folly unite to prevent us having a union pharmacopeia, so that the medicine bearing the same name may be prepared in the same manner, and of the same strength, in Dublin, Edinburgh, and London. There is, however, happily not much difference in the properties of the tincture as prepared after the three different modes. They are all most useful preparations, and the dose is from ten to sixty drops, gradually increased, and beginning with the lesser quantity. These tinctures, or rather the tincture, has a brownish yellow colour, and a very austere taste, and is tonic and even deemed antispasmodic. It may be employed for every purpose for which the other preparations are employed, and in addition was recommended by the late Mr Cline of St Thomas's Hospital, as highly serviceable in dysury depending on spasmodic stricture of the urethra, in small doses repeated every fifteen minutes, till nausea be induced. It frequently affords the most essential relief in these cases, in doses of twenty-five drops three times a day, administered in a draught consisting of one dram of the carbonate of soda, and forty-five grains of tartaric acid, in fine powder, swallowed in a state of effervescence. When the disease affects the aged, or those whose constitutions have been nearly worn out by intemperance, ten drops of tincture of cantharides may be taken in each draught. The soda should first be dissolved in half a pint of water, the tinctures then added to the solution, and the finely powdered tartaric acid quickly scattered in, and then swallowed. The muriated tincture is likewise applied as a caustic to warts, after they have been a little pared down in the top, and as a styptic to bleeding vessels in cancerous and loose fungous sores, &c. The Dublin college have lately introduced a muriated tincture made with the red oxide, but we think it unnecessary to give the formula, as the preceding will answer every purpose equally well; and the formula we have given in our concluding column on chronic hepatitis, for the preparation of a muriated tincture with the dried sulphate, is a much better preparation, of course, when used as a muriated tincture of iron; the oxymuriate of mercury will be omitted, and then the tincture is equal to the preceding, and in some cases superior.

Tincture of Ammoniated Iron.

Ammoniated iron, four ounces.
Proof spirit, one pint.
Macerate, and strain or pour off the clear tincture from any fæces, if any remain.

This may be used as the last, but in much larger doses, and may be given to children with hard tumid bellies, in doses of from twenty to eighty drops three times a day, and in cases of small worms by the mouth; and in the form of enema, half an ounce of the tincture, and four ounces of warm water thrown up cautiously, and retained for an hour, will often dislodge incredible numbers of these vermin.

Wine of Iron.

Iron filings, two ounces.
Sherry or Spanish white wine, one pint.
Mix, and set aside for a month, often shaking the bottle, then filter through blotting paper, or carefully pour off the clear liquor.

The iron in this case is only dissolved in the wine by means of the super-tartrate of potash the wine contains. This preparation is no doubt tonic, and is frequently found useful in chlorosis, and the relaxed habits of young females, in doses of from one dram to four three times a day, in a wineglass of sherry or Madeira wine.

Acetate of Iron.

Carbonate of iron, half an ounce.
Acetic acid, three ounces, by measure.
Digest for three days, and strain.

This is a convenient form for administering iron. It may be given in water, in doses of ten to thirty drops three times a day, gradually increasing the dose, and may be used in every case in which the salts and preparations of iron are recommended. The Dublin college order two tinctures of the acetate of iron, but their preparation is too complicated.

Solution of Alkaline Iron, or the *Alkaline Liquor of Iron.*

Filings of iron, two drams and a half.
Nitric acid, two fluid ounces.
Distilled water, six do.
Liquor or solution of sub-carbonate of potash, six fluid ounces.
Mix the water and acid, and pour them upon the iron.

As soon as the effervescence has ceased, pour off the acid solution, add this gradually, and at intervals to the solution of the sub-carbonate of potash, shaking it occasionally, until after having become of a dark red colour, no more effervescence may be excited; lastly, let it stand for six hours, and pour off the solution. This is certainly a valuable addition to our other preparations of iron when accurately prepared. Except those conversant with the details of chemical pharmacy, this medicine had better be

purchased than prepared at home, although we think most tinctures and solutions might easily be prepared by the home apothecary, for in all cases where spirits are ordered, we find the tinctures sold in many shops (for there are some few happy exceptions) of very inferior quality, and prepared with the cheapest and most impure spirits. This solution of alkaline iron is considered a double salt, or a pernitrate of iron and carbonate of potash dissolved in water. It is slightly alkalescent, clear, and of a deep brownish red colour, and styptic taste; and like most of the other preparations of iron, quite inodorous. It is given in doses of from thirty to eighty drops. When taken in a wineglass of water, it must be swallowed the instant it is added to the water, else the iron will be precipitated.

We have thus enumerated all the principal preparations of this metal, the uses to which they are applied, and the doses in which they are administered. Their applicability to particular cases, will be found under the articles in reference to the diseases for which they are prescribed.

The persesquinitrate of iron has been recommended by Mr Kerr, Dr Graves, and others, in the sequel of diarrhœa; and we have yet much to learn respecting the effects and modes of using this medicine. Combined with columba and other bitters, we have seen it effect incalculable good in that state of debility which frequently attacks young men between the ages of fifteen and nineteen; and we hope not only the public or families who consult this work, but many members of the faculty, may derive useful hints from an attentive perusal of these remarks.

The only other form in the pharmacopeias which derives its name from iron, is the compound pills of iron. There are two formulæ, and we shall give them both, as they differ somewhat in their composition, and even in the cases to which they are applicable. The London formula is as follows:

Myrrh, in powder, two drams,
Sub-carbonate of soda,
Sulphate of iron,
Refined sugar, of each one dram.

Powder the myrrh with the sub-carbonate of soda, next having added the sulphate of iron, rub them again, then beat the whole mixed together into a homogeneous mass.

This is Griffith's mixture in a solid form, and is a very convenient and useful medicine.

The Compound Pills of the Sulphate of Iron of the Edinburgh pharmacopeia.

Sulphate of iron, in powder, one ounce.
Extract of chamomile, one ounce and half.
Volatile oil of peppermint, one dram.
Beat into a mass with simple syrup.

This formula differs from the preceding, as the sulphate of iron becomes changed by its union with the sub-carbonate of soda, and assumes the state of an oxide, while in this it remains unaltered, and is therefore swallowed in its saline state.

Chalybeate Pill.

Socotorine aloes, in powder, one dram,
Dried sulphate of iron, in powder, half a dram.

There is not one of these forms but is preferable to Hooper's or Widow Welch's long celebrated female pills. We believe, if the two latter forms were beat together, and the peppermint oil omitted, they would be almost the same composition of the original Hooper's female pills. The new preparations of iron will be noticed under the various articles from which they derive their designations.

IRRITABILITY is that power inherent in muscular fibres, by which they are susceptible of contraction either on the immediate application of stimuli to their fibre, or by the application of stimuli indirectly through the medium of the nerves which supply them. Irritability differs greatly from sensibility, as many parts are irritable which are not at all sensible. Thus, the heart, which is an organ peculiarly irritable, is not at all endowed with sensibility, that is to say, the application of stimuli produces rapid and violent contraction of the organ, whilst it is a known fact, that it may be wounded with a sharp instrument, without the animal feeling any pain, or even being sensible that it is touched; and irritability is also exemplified by applying stimuli to the muscular fibres of an animal recently dead, and when of course all sensibility is gone. The term irritable is also applied in common language to that restless, or anxious, or fidgetty state which so frequently accompanies chronic and nervous diseases.

IRRITATION. By constitutional irritation is meant the train of symptoms lighted up in the system by injuries, surgical operations, the effects of certain substances taken internally, and disagreeing with the stomach, as certain poisons, and by the presence of stone in the bladder, and worms in the intestines. Thus we see, after certain accidents and operations, as compound fractures, a peculiar train of symptoms excited. There is uneasiness, watchfulness, quick but generally rather weak pulse, furred tongue, dry hot skin, and scanty urine. This state or irritative fever is well marked in cases of hectic fever, where it has become necessary to open large abscesses, the irritation so induced in the weakened patient causing an accession of fever, resembling somewhat the inflammatory in its general symptoms, but characterized by the weak pulse and general debility. The same is also frequently seen in patients immediately after undergoing any of the greater surgical operations. The best remedies for this state are, attention to the state of the various secretions, and to the state of the bowels, removing the cause of irritation, if that be pos-

sible, and the exhibition of anodynes either alone or combined with diaphoretics.

ISINGLASS, or *Ichthyōcolla*. This is a soluble gelatin, ninety-eight parts being soluble in the 100, has a semi-whitish transparent colour, is dry, tasteless, and inodorous, and forms an opaline jelly when dissolved in boiling water. It is prepared from the skins of fish, especially the beluga and sterlet, and likewise from the seruga and sturgeon. Its preparation is principally confined to Russia, although we see no good reason for the permission of such a monopoly, as it might be easily prepared at home by the families of fishermen on our own coasts, and produced at a much lower price. There is a very great difference in the quality of this article, but the best is the thinnest, most dry, and transparent. It is more employed in diet than as a medicine, and the jelly is nutrient and demulcent. It is used in the preparation of court plaster, and for the purpose of clarifying various liquids. It is, however, incompatible to be mixed with alcohol, carbonate of potash, or astringent vegetable infusions. A jelly formed of the best isinglass is an excellent article of diet for children who are subject to acidities or heart-burn; and we have seen it retained on the stomach in cases of severe vomiting in the first months of pregnancy, when every other nutritious substance was previously rejected for some days.

ISSUE. A sore intentionally made and kept open with the view of keeping up a discharge from the surface so as to produce a degree of counter-irritation. Issues are principally had recourse to in treating diseases of joints, chronic diseases of bones, and also in cases where there is a tendency to determination of blood to the head. The usual method of establishing an issue is to make an incision through the skin, and then introduce into it one or two peas, or some other foreign body to keep it open, and induce suppuration. The foreign body is retained by means of adhesive plaster for three or four days, or until discharge has fairly commenced, and then the peas are removed and fresh ones introduced, and the issue thus kept open as long as may be deemed requisite. Issues may also be made by means of either the actual or potential cautery; the slough formed by the application is allowed to separate, and then the raw surface is dressed with some irritating ointment so as to keep it open.

The seton is another form of issue, which is produced by pushing a broad needle armed with a piece of tape through a fold of skin, the tape is then left in the superfluous part, being rolled up and pinned so that it may at a future period be unrolled and drawn through in lieu of the part then in use when it becomes dirty. The seton is the species of issue principally used in treating chronic diseases of the brain, and is then usually inserted in the nape of the neck.

ITCH; known likewise by the technical names of *Psora* and *Scabies*. This contagious disease is characterised by vesicles and small itching ulcers, in general first commencing on the hands, between the fingers. This disorder more generally appears in the form of small vesicles intermixed with the pustules, 'but its aspects are very various.' It occasionally breaks out on every part, the face only excepted. It is, as already stated, highly contagious, and consists essentially in the presence of a minute insect burrowing and breeding in the skin, and pathologists are not yet agreed whether this insect be a consequence or a cause of the disorder; but some late experiments prove that these insects, applied to the skin of a person free from the disease, will speedily communicate the true itch, and other similar insects will be produced, so that they may be said to be both a consequence and a cause, although the itch may exist without the presence of the insects, and be communicated by the virus. An individual with a tender skin will be infected merely by shaking hands with a person labouring under the itch. Although this disease of itself never proves fatal, it is sufficiently troublesome, and it is painful to see infants suffering from its tormenting itch without either being able or knowing what to do, but giving sufficient evidence of the pleasure they derive from being scratched, a pleasure which a northern monarch said was too refined for a plebeian to enjoy. In infants the tender and delicate skin soon exhibits a universal scald. The fingers and toes are incapable of motion from the pustules and scabs with which they are surrounded; this incapacity extends its influence to the larger joints, buboes form in the groins and arm pits; painful, restless, may we be allowed to add, miserable, is the life of such an infant. This, however, is no picture of the imagination, but a scene which medical men not unfrequently behold with mingled emotions of sorrow and regret. There is another kind of cutaneous disease nearly allied to the true itch, which is denominated by Dr Willan the *Psoriasis Infantilis*, or the *Psoriasis of Infancy*. Infants are liable to this affection as well as the preceding, between the ages of two months and two years, and it is known in some places by the name of the *dry tetter*. It consists of irregular scaly patches on the cheeks, chin, breast, back, nates, and thighs, and in this differs from the true itch that never appears on the face. These patches are sometimes red and a little rough or elevated, sometimes excoriated, then again covered with a thin incrustation; and lastly, intersected by chaps or fissures. The general appearances nearly coincide with those of the diffused tetter, but there are some peculiarities of this cutaneous affection of infants

which requires serious consideration, seeing it often becomes inveterate, and creates such a degree of irritation as to prevent both the nurse and infant from enjoying one hour's peaceful rest at a time. The skin is red as in the preceding case, deeply furrowed or wrinkled, stiff, and rigid so as to impede somewhat the motion of the muscles and joints. So quick likewise is the production and separation of scales that large quantities of them are found in bed, or on the envelopes of the infant. They indeed continue to fall off by day as well as by night, and being confined within the linen excite a troublesome and perpetual itching. This affection, unlike the true itch, is not contagious, but as the effects produced are almost the same as that produced by the itch, and the mode of treatment somewhat similar, we have coupled them together; and moreover, as itching is the most prominent characteristic, both parents and nurses are more likely to look for a description and means of relief under this head.

No person having the common feelings of humanity, and much more those who have the feelings of parents, can witness the twisting and writhing of an infant not six months old almost deprived of the skin by the action of either the one or other of these troublesome diseases, and many a stout healthy infant has been reduced to a skeleton for want of sleep by the constant itching and irritation. The former of these diseases is most commonly confined to the children of the poor, but the latter seizes indiscriminately on poor and rich. In the selection of a wet nurse from the lower classes, the itch might not only be communicated to the child but to the family, and it often exists in a dry form where it is not easily detected; families therefore, for their own sake as well as for that of their tender skinned infants, should be especially on their guard.

The treatment of these itchy affections are the same, and the infants will even derive a benefit from the nurse using, as common drink, Donegal, Harrowgate, or Moffat waters, in doses of four half pints daily, a measure that cannot fail of improving her own health. Or ten or fifteen grains of sublimed sulphur, and five grains of magnesia, may be taken twice a day in a wine glassful of new milk. Or if there is serious objections against these, twenty drops of elixir of vitriol may be taken three times a day in a gill of cold water. The two first modes are, however, the best. With respect to the infants, one grain of Ethiops mineral, reduced from the ordinary strength by mixing intimately with the Ethiops twice its weight of sublimed sulphur may be given night and morning, and after a few days use three times a day. The dose, especially if the child is above six months, may be gradually increased to three grains, as the Ethiops is an extremely mild medicine, and when correctly prepared its effects as a mercurial on the system will scarcely be perceived. Or the infant may be allowed one tea spoonful of the Donegal or Harrowgate waters in twice the quantity of new cow's milk, or breast milk, thrice a day, gradually increasing the dose according to the age, till a large spoonful or more is taken in the course of twenty-four hours. The infant is likewise to be bathed in either of these three sulphureous waters made about 61° degrees of heat, or a bath prepared by imitating the chemical composition of these waters to which we refer, as either of the waters recommended may be artificially prepared or procured from Harrowgate or Donegal, in bottles, at a cheap rate; and either of these waters we know will, if properly corked, keep for years. The skin should be carefully dried after each of these washings or bathings, and very carefully but lightly dusted with a powder consisting of equal parts of magnesia and sublimed sulphur intimately mixed and tied up in a dusting bag. Especial attention should be given to the tender spots where the scabs have peeled off. In cases of itch either of these plans of treatment, combining the bathing, and external treatment with any of the internal medicines, will speedily remove the disease, it being always understood that the mother, nurse, and attendants are free of the contagion. The other affection will not so speedily yield, and will require greater perseverance, and in cases where scrofula is in the family the nurse may begin by taking five drops of the tincture of iodine three times a day in a little syrup and water, gradually increasing the dose by one drop daily, till twenty are taken as a dose, and continue this medicine. The external and internal remedies for the infant are not, however, to be neglected.

With respect to the cure of the itch in adults, and even those who have reached their third or fourth year, nothing can be easier, or in general more successful, as sulphur may almost be regarded as a specific in the complaint. In children and females of very tender skins no other remedy is required but rubbing with sulphur or itch ointment one quarter of the body every night, say the legs, thighs, and abdomen up to the navel of one side, the first night. The other upper division of the same side up to the neck next night, and proceed accordingly, till the ointment has been well applied to the whole body, and on the fifth night let the body be well washed with warm water and soap, and for this purpose soft soap is to be prepared. During the time of these rubbings the patient is to take a fourth part of the following powders every night at bed-time, in a glass of new milk.

Sublimed sulphur, three drams.
Magnesia, one dram.
Mix intimately.

The ointment may be made by simply mix-

ing three drams of sublimed sulphur with one ounce and a half of prepared hog's lard or fresh butter, or even half an ounce or more of the sublimed sulphur may be mixed with the same quantity of lard or butter. This quantity is sufficient for an ordinary sized person when the disease is not very obstinate. It is usual to add some perfume, such as a few drops of essence of lemon, bergamot, or thyme; but they do not cover the smell of the sulphur when the body gets warm, and are of no real use whatever. The lard and sulphur may be mixed with a common knife or spatula on a broad delft plate or tyle, but a wooden spatula is preferable. The ointment of sulphuric acid is sometimes used for the cure of itch. See *Sulphuric Acid.*

Those who have less tender skins, and where the disease has been of longer standing, and is supposed more inveterate, may use the compound sulphur or itch ointment which is made according to a prescription of the late Sir John Pringle, and generally used in the army. Two or three ounces are sufficient for the largest sized person, but we use an ounce to every quarter of the body.

Sublimed sulphur, four ounces.
Powder of white hellebore, one ounce.
Nitre or saltpetre reduced to fine powder, one dram.
Soft soap, four ounces.
Prepared hog's lard, twelve ounces.
Mix intimately.

Dr Duncan says that it requires a pound of this ointment to cure an adult of the disease; but we rather suspect he had never seen it applied, for one quarter, or six ounces at most, is quite adequate if used as we have directed, and the sulphur and magnesia taken internally during its application. The same bed and body clothes, especially the under dress, should be kept on till the fifth night. Great care is necessary to have a complete change of every article of bed and body clothes that have come in contact with the skin during the existence of the disease. The pillow-slips, sheets, &c., and the cuffs of the coat, should be all thoroughly cleaned. The marks of the pustules may remain for some time, but the itch will be gone. The disease may be cured in twenty-four hours by mixing half a pound of lard or butter with four ounces of sulphur, and rubbing well the whole body, and of course the hands and thighs more particularly, taking a dram of sulphur every four hours in warm milk, putting on drawers, stockings, and shirt, and remaining in bed for twenty-four hours, and then rising and washing. We consider it, however, a safer and better mode to occupy five days with the process if time can be spared, and there is no use of confining the patient to bed during that time.

The very disagreeable smell of the sulphur and those preparations into the composition of which it enters, has induced many practitioners to try other less unpleasant remedies for the cure of itch; and among others the chloride of lime as a lotion. Professor Fantonethi gives the result of nine trials, and in seven of them the disease was cured in from six to eight days; in the eighth case, the psoriasis or itchy eruption was removed, but was followed by eczema or hot painful eruption, which gave way to the use of tepid baths, and he left the hospital well. The itch, however, re-appeared, and then yielded only to the sulphureous fumigations. In the ninth the psora or itch was cured, re-appeared, was cured again, returned a third time, and was finally subdued by the sulphureous fumigations. The chloride of lime lotion is made by adding an ounce and a half, or two ounces, of the chloride to one pint of water. It ought to be rubbed three or four times a day on the affected parts. A simple tepid bath is to be used every third day, in order to soften the skin and clear it of any calcareous crusts. If the lotion is too irritating its strength must be reduced. The disease is generally cured effectually in eight days. From numerous experiments, M. Emery at the hospital of St Louis, the following formula, the basis of which is taken from Heffenrefor, used in friction night and morning, cures the itch in less than a week. Of twelve hundred individuals thus treated, very many were cured in four or five days, others only in ten, twelve, and fourteen days. The preparation does not dirty the linen, has no bad odour, and is cheap:

Yellow soap, one ounce.
Alcohol, one dram.
Common salt, half an ounce.
Vinegar, two drams.
Sulphur, half an ounce.
Chloride of calcium, half a dram.
Mix. This quantity suffices for four frictions.

We are disposed to think rather favourable of these two French formulas from some trials we have made with the solution of the chloride of lime; much, however, depends upon the quality of that article, as we succeeded with some parcels while we failed with others. It should, however, be remarked that the shirt or under dress that is worn during its application will soon fall to pieces from the causticity of the liquor.

The ointment and decoction of white hellebore has likewise been used, and it is devoid of any disagreeable smell; (see *Hellebore, White*) but it fails in numerous cases, and in tender excoriated skins its use is not without danger, as it is a most active vegetable poison. Solution of corrosive sublimate has also been prescribed, and other preparations of mercury in the form of ointments; but independent of the danger that attaches to the application of mercury to such a large portion of the skin as even a fourth of the human body, independent of the uncertainty of a cure, mercury should never be employed in the cure of the itch when sulphur can be procured. In the employment of sublimed or washed sulphur, care should be taken

to procure these preparations pure. The best preparation for external use is the sublimed sulphur, or flour of brimstone, which should feel smooth and be free from all sand or grittiness whatever; and when fine is also to be preferred for external use. But the washed sulphur, or the milk of sulphur, which is whiter and smoother, and higher in price, may be used internally by children as more mild, but not so effectual as the other. We have frequently seen the size of a walnut, or even hazel nut, of the common sulphur ointment sold in the shops, well rubbed over the hands at bed-time, and a pair of worsted mits worn during the night, and the hand well washed with warm water and soap, cure and check the progress of itch, which if neglected would have involved a large family, and perhaps connections, in all the disagreeable processes of curing this troublesome disease.

J

JALAP, or *Convolvulus Jalapa*, JALAP ROOT. Jalap is a native of Mexico, Vera Cruz, and other portions of South America. It has long held a place in the materia medica, and the root has a slightly nauseous odour and a sweetish taste, with a slight degree of pungency; it is solid, hard, heavy, and brittle, with a resinous fracture. It is internally of a light gray, externally covered with a deep brown wrinkled bark, and it is imported cut in transverse slices. Jalap is ordered by the colleges in the form of compound powder:—

Jalap root in powder, one ounce.
Cream of tartar, two ounces.
Mix intimately, by rubbing these ingredients together in a stone mortar.

This is an excellent purgative, especially in dropsical cases, or indeed as a common purge, in doses of half a dram to two scruples to adults, and more or less according to the age or circumstances of the patient.

Tincture of Jalap.

Jalap root bruised, four ounces.
Proof spirit, (brandy or whisky) one pint.
Macerate for ten days, frequently shaking the bottle and then strain.

This is an auxiliary to purgative draughts, it is especially an excellent addition to the simple infusion of senna in worm cases, and in the other diseases in which it is recommended, the dose is from one dram to four. The extract is only made by pharmaceutical chemists, and is kept either in a hard state to be reduced into powder, or soft for making into pills, its dose is from five grains to fifteen. Jalap root and its preparations form a well known and valuable purgative, which is perhaps more generally employed than any other of vegetable origin, and, except that it occasionally produces nausea, it seems to possess every advantage that can be wished for in a medicine of that description. When taken in large doses its operation is drastic, and even approaching to that of the hydragogues; but it does not derange the functions of the bowels, or produce any subsequent injurious effects, and by diminishing the dose its action may be reduced to the proper degree of mildness. One scruple of the simple powder, without any admixture, is a dose for an adult. When jalap is taken in the form of powder, three or four grains of the powder of ipecacuanha added to the dose increases its action on the bowels, and even tends to prevent griping. It is a standard family medicine, and when combined with senna and aromatics, as in the compound tincture of senna, it is truly valuable. See *Senna*.

The following formula may answer a good purpose with a spoiled child who is averse to take medicine on necessary occasions; it is from the pharmacopeia of the Montpelier hospital.

Powder of jalap, one dram.
Fine flour and refined sugar in powder, each one ounce.
Two fresh eggs.
Mix and make into leaven or dough, which is to be formed into three biscuits.

One of these pleasant cakes will form an active purge for a child of eight or ten, and two of them purge an adult.

JAMAICA PEPPER, or ALLSPICE PIMENTO, is a berry, the unripe fruit of the *myrtus pimento*, a tree which grows in Jamaica. It has a fragrant aromatic smell, resembling a mixture of cinnamon, nutmeg, and cloves; it has a reddish brown colour, and is a little larger in size than the black pepper corn, but with a taste not so pungent as some of the other peppers. It is stimulant and carminative, and used chiefly as a condiment and as an adjunct to other medicines. When used in substance, which is seldom the case, as a medicine, the dose is from five grains to half a dram. Its officinal preparations are a distilled water, an oil, and spirit. The oil is obtained by distillation from the fruit, but is seldom prepared by the apothecary, or even the wholesale druggist. It has a very fragrant odour, and tastes of the pimento in an increased degree; it is heavier than water, and of a red brown colour. Its operation is tonic, stimulant, carminative, but is never taken undiluted. Two

to three drops rubbed with refined sugar may be taken in debilities of the stomach, flatulent colic, and tympanites. The oil is likewise dropt into carious teeth to relieve the toothache. It enters into the composition of the aromatic plaster of the Dublin pharmacopeia, and is an excellent corrector of purgative pills, being an eligible substitute for the oil of cloves and other expensive essential oils.

Pimento or Allspice Water.

Pimento bruised, one pound.
Or oil of pimento, two drams.
Proof spirit, seven fluid ounces.
Water, two gallons.
Let a gallon distil.

This is an elegant and cheap carminative and stomachic water, holding a small portion of the essential oil in solution. It may be taken in doses of half a wine glassful, or even more, in cases of flatulent colic, and when a small portion of syrup, say four ounces, is added to a pint of this water, it forms an excellent cordial dram, with cold acid fruits, far preferable to strong spirituous compositions; which however they may afford relief at the time, often leave a sting behind, and establish a custom not easily relinquished. This water is likewise employed as a vehicle for other medicines of greater efficacy.

Spirit of Pimento or Jamaica Pepper.

Pimento bruised, two ounces and a half.
Proof spirit, one gallon.
Water, three pints.
Mix, and let a gallon distil with a slow fire.

This possesses the virtues of the water, but should be taken in smaller doses, from one dram to three in a little syrup and water in the same cases as those in which the water is directed, such as flatulent colic and atonic gout.

JAMES'S POWDER. This is a patent medicine, the invention of a regular physician, who chose to sell the recipe for a sum of money. The patent is expired, but the secret is not yet discovered, although it is now prepared by two different firms in London, one of whom assert that they obtained the recipe from a descendant of Dr James since the expiration of the patent; but the original purchasers continue to prepare it as usual. It is certainly far superior to the antimonial powder of the pharmacopeias, and we advise our readers to inquire for Newberys and Son's James's Powder. It is sold in packets with printed directions; but there is not one case in every hundred in which it is ordered but the antimonial powder is substituted. The Government ought to purchase the right mode of preparing this excellent medicine. If the specification for the patent had been fairly given, this had not now been necessary, and a committee of the House of Commons might arrive at the knowledge of the real process by an examination of all concerned in the manufacture, as the process is now known by two or three individuals. The dose will be found specified in every case where it is ordered.

JAUNDICE, or *Icterus*. This disease is characterised by a yellowness of the skin and eyes, whitish fæces, and dark-red urine which tinges linen of a yellow colour. The most remarkable symptoms of jaundice depend upon the absorption of bile into the circulation after it had been previously secreted; upon this depends the peculiar colour of the skin, and the cornea of the eye, arising from the serum of the blood being tinged with bile which is carried into it by the lymphatics of the liver. To the same cause, the bile being present in the blood, we may ascribe the bitter taste of the saliva, and the yellow colour which is communicated to the urine, as well as its property of dying substances that are immersed in it. M. Lecanu states that the blood in jaundice contains, besides the ordinary principles, 1st. An insoluble combination of albumen and soda. 2d. A similar combination, soluble. 3d. An orange-yellow colouring matter, combined with an oily substance. And 4th, a blue colouring principle. As all these substances exist in the bile, there is reason to admit its presence in the blood.

Jaundice may occur in the acute form, or it may come on in a slow insiduous manner; but, in either case, it is always accompanied by symptoms referable to a morbid state of the mucous membrane of the intestines. Individuals subject to indigestion and diarrhæa are most liable to it; but it may also attack strong and healthy persons; for example:—An individual is exposed to considerable heat, his body is bathed in perspiration, he experiences some degree of lassitude, is very thirsty, and in this state he takes a large draught of cold water. In a few hours afterwards he begins to feel uneasy, and complains of being unwell, he shivers, and experiences nausea, thirst, and fever; and this fever and thirst, with bilious symptoms, (as they are called), continue for two or three days, when, some morning on awaking, he is surprised to find himself in jaundice. The same thing may likewise occur from an error in diet, or in other words, eating a large quantity of indigestible food late in the day without taking sufficient out, or even indoor, exercise to promote digestion. The patient, as we have already stated, is in these cases usually indisposed for two or three days before the jaundice appears; he has nausea, vomiting, great thirst, loss of appetite, complains of burning heat in the epigastrium, and there is some tenderness on pressure over the region of the stomach and duodenum. The tongue is foul, the bowels costive, the urine loaded; there is great prostration of strength, with vertigo, and lowness of spirits, and constant sighing. In these cases there is always

more or less febrile disturbance; in some cases the fever is ephemeral, and goes off in a day or two, in others it continues a much longer period. When this fever continues beyond the second or third day, it is to be looked upon as rather an unfavourable sign, and in such circumstances the most prompt measures will be required. The variation in the intensity of the yellowness is another remarkable and unpleasant symptom. There are cases in which the countenance and skin are much less yellow on one day, and this is generally noticed by the patient, who feels pleased with the decline of the jaundiced tint; but in a day or two it becomes as deep as ever, and sometimes it goes on this way alternating from a faint to a deep tinge, and vice versa. This unfavourable appearance is likewise accompanied by an increase of the tenderness over the region of the stomach, &c. In such cases as this, the patient does not, as under other circumstances, shake off the disease and return to his usual habits; he lies in bed, and though he complains of no pain except when pressure is made on the epigastrium, still the patient is not at all improving, for languor and want of appetite remains, and the skin has not assumed its natural appearance. The stools are, as already stated, generally whitish or clay-coloured; but this is not a necessary consequence of jaundice, as they are sometimes yellow, and occasionally a perfectly healthy appearance. Where the fever is ephemeral, the pulse, in most cases, returns in a few days to its natural standard; in some instances it is remarkably slow, and this state of pulse is likewise an unfavourable symptom. In jaundice, there is sometimes a slight degree of subsultus tendinum (or starting of the tendons) and delirium, and it should be borne in mind that the early appearance of these, or other nervous symptoms in any form of this disease, should be regarded with suspicion and carefully watched. The most alarming symptom, however, is that of coma or sleepiness, which sometimes occurs, and when it or any of the preceding unfavourable symptoms occur in this variety of jaundice which we have just described, and which, no doubt, depends on gastro-duodenal inflammation, or in other words, on an inflammatory state of the stomach and upper part of the intestines, the best advice should be procured where it can be obtained; and if not, the plan of treatment proposed in the sequel strictly adhered to.

There are, however, frequently cases so mild as to excite little or no notice, and they frequently disappear on the administration of a few doses of purgative medicine, preceded by an emetic. In what way the phenomena of jaundice are connected together, whether a mere obstruction to the passage of the bile itself, or some torpor in the digestive organs or their appendages, it is hard to decide. In many, perhaps in most cases, the jaundice depends upon some disease in the structure of the liver, by which its functions are permanently injured; sometimes by an extraneous filling up the duct (as we shall presently see) or pressing upon it; but there are cases in which it appears to arise from some cause that is more strictly idiopathic, or independent of any other disease, and of a less mechanical nature.

There is one fruitful cause of jaundice, viz. biliary calculi, or gall-stones obstructing the passage of the bile; a pretty full account of these will be found under the head of *Gall-Stones*, to which the reader is referred. We shall therefore sum up the history of the other varieties and causes of the disease yet unnoticed. The other varieties, then, are the *spasmodic*, from spasm about the gall ducts; the *hepatic*, connected with disease in the liver; the *gravid*, occurring in pregnancy, and occasioned by the gravid uterus pressing on the biliary ducts; the *infantile*, produced by a retention of the meconium, or derived from the mother previous to birth; the *mucous*, occasioned by a collection of viscid mucous in the duodenum; and the *gastro-duodenal*, already fully described. Sometimes the mere collection of hardened fæces in the intestines will throw the bile back upon the liver and system, and thus occasion jaundice. Jaundice is likewise occasioned by a redundancy of bile, as in what are called bilious fevers, and now and then intense passion or feeling will produce the complaint, with or without painful spasm of the gall ducts, or rather of adjacent parts.

The *treatment* of this disease has long been a favourite pursuit with ignorant pretenders to a knowledge of the most appropriate remedies, and it must be acknowledged, that in some of these they have occasionally succeeded, from the circumstances in which they were administered, for with such individuals one remedy only is applied to every description of case. We have known the most disgusting substances being covered up and swallowed without the patient being acquainted with the nature of the dose: and if they had remained ignorant of its nature, no effect whatever might have followed; but before many minutes they are shown a similar dose uncovered to that which had been given in disguise, and such is the abhorrence felt, that in most cases nausea and severe vomiting follow, and are kept by the recurrence of every idea respecting the filthy ingredients, that this violent and continued action of the stomach sometimes terminates in a removal of the disease. In these cases, however, a judicious use of ordinary emetics would have had the same effect. In the symptoms and treatment of jaundice from gall stones, little can be done by the domestic practitioner, except bleeding, the warm bath, and antispasmodic remedies.

To that form of the disease of which we have adduced an example as being produced by imprudently drinking cold water when overheated, or eating voraciously of indigestible food, and which we adduced as the effect of gastro-duodenal inflammation, we shall first direct our attention, tracing it out in its favourable and most unfavourable circumstances. In mild cases where there is little or no fever (for the fever is to be taken as a test of the severity of the disease) the patient very often gets well without any treatment, and the jaundice, after lasting a few days or weeks, spontaneously goes off. In all such cases a regulation of diet, keeping the bowels open by mild laxatives, such as one ounce of Epsom salts, and one grain of emetic tartar, dissolved in half a pint of water in the course of the day, a fourth part every three hours, and a pill consisting of three grains of calomel, the same quantity of extract of henbane, and half a grain of opium, at bed-time. Spirits, punch, wine, strong ale, and other stimulants should be strictly prohibited, and the diet should consist of nothing stronger than tea and dry toast or biscuit, sowens or flummery, and boiled barley and milk. This plan will be found equal to the removal of the disease in a few days. The advice, however, of Dr Stokes, to whom we are indebted for much useful and interesting information on this and other diseases, should be imprinted on the memory. 'I wish,' says the Dr in a lecture to his pupils on this subject, 'to impress upon you that it is of the utmost importance to cut short this disease as soon as possible.' By vigorous treatment in the first instance there is less chance, indeed there is scarcely any chance at all, that the disease will ever proceed to assume the unfavourable symptoms which frequently are permitted to set in, and often from no other cause than the neglect of proper treatment in the outset. It is true there is no necessity for dosing or starving the patient when once the disease has yielded; but we are to satisfy ourselves that it has really disappeared before we relax in our means. In every case where the symptoms are acute, and where there is any degree of fullness and tenderness over the epigastrium, leeches to the extent of from twenty to thirty may be applied over the stomach and duodenum, and the bites kept bleeding for some hours, or as long as the patient will bear it, continuing at the same time the Epsom salts and emetic tartar mixture, and the pill at bed-time.

Great advantage will be derived by an enema every morning, composed of half a pint of thin gruel, with half an ounce of Epsom salts. The following pills may be used, two every night at bed-time, provided the feverish symptoms are not beginning to give way to the other treatment:—

Extract of henbane, half a dram.
Opium in powder, six grains.
Calomel, and the true James's powder, of each twenty-four grains.
Form into a uniform mass, and divide into twelve equal pills.

The Epsom salts mixture is to be continued, and the enema. If the inflammatory symptoms continue, the leeches may be again applied where the tenderness on pressure is most felt. If the patient complains of thirst, a better drink cannot be given than cream of tartar dissolved in boiling water, sweetened and allowed to cool, when it may be taken at pleasure. If the disease is not yielding to these means, and if no professional advice be within reach, two drams of mercurial ointment may be rubbed on the epigastrium and neighbourhood daily till the mouth is a little affected, and then it may be discontinued, and likewise the pills. It is, however, sometimes no easy matter to bring mercury to affect the system in this disease. We do not, however, recommend the adoption of the external application of mercury till the other means have been tried, and only then in those cases where no medical aid can be procured but that which our volume, the family medicine chest, and an observant and tried friend and relation can afford. When coma or drowsiness appears, the case may then be supposed as seriously affecting life, and all that can be done by a domestic practitioner is to follow up the purgative plan already recommended, shave the head, and apply a large blister to the nape of the neck, and leeches behind the ears, six or eight leeches on each side. Rags, two or three times folded and moistened with spirits in which camphor is dissolved, may be applied to the crown of the head, and kept constantly moist. (See *Camphor.*) One ounce of camphor to a quart of common proof spirits will suffice. Such are the phenomena exhibited in the attacks and progress of this species of jaundice that it has often been mistaken for yellow fever.

The next form of jaundice that arrests our attention is the *spasmodic*, which occurs independent of inflammation of the liver, stomach, duodenum, or any of the other viscera affected in the preceding. Where the spasm occurs it is not accurately determined, but the gall-bladder, biliary ducts, and duodenum, have all been fixed upon. Non-professional readers, for whose benefit this work is intended, would not reap any benefit from a discussion on this yet obscure branch of the subject. Suffice it to state that it seems to be excited by the same cause, and yields to the same treatment as the other spasmodic affections. It generally occurs in hysterical females, and in hypochondriac and nervous persons, and disappears under treatment calculated to allay nervous excitement. Terror, or a person being suddenly and very unexpectedly alarmed, will often induce it, and in a few hours the skin, &c. will become yellow.

Indeed, its exciting causes seem to be chiefly sudden and violent mental emotions, or the indulging too freely in indigestible food, and it frequently terminates by the discharge of flatus upwards and downwards. It resembles to a certain extent that form of the disease induced by calculi or gall stones, but differs in two particulars: first, the pain is relieved by pressure, which generally increases it in the other species; and the second peculiarity is that the spasmodic is more sudden in its attack. In the case of jaundice from gall stones, the patient has some degree of pain and uneasiness before the violent symptoms appear; but in this form they exhibit themselves in a sudden and unexpected manner. The disease, too, is accompanied with hysterical and convulsive symptoms, and there is sometimes a copious flow of limpid urine, and all these symptoms are important in forming a correct opinion as to the true nature of the disease. The best treatment is, after evacuating the bowels freely by warm purgatives, such as the tincture of aloes and syrup of ginger, to follow up the treatment by the asafœtida enema, and the general treatment we have recommended under the article *Hysteria*, or *Hysterics*. Opiates combined with antispasmodics, and occasionally purgatives, but tobacco enemas should never be used but by the advice of an experienced practitioner, as the disease will often disappear as suddenly as it made the attack, and tobacco is a most dangerous agent, especially in cases of delicate females.

The next in order is the hepatic variety of jaundice, connected with disease of the liver; the mercurial treatment recommended when treating of *Hepatitis*, or of *Liver complaints*, may be adopted with advantage in this species of the disease, especially that of chronic hepatitis. (See *Hepatitis*.) Another variety, viz. that occurring in pregnancy, and occasioned by the gravid uterus or womb pressing upon the biliary passages, seldom requires any farther attention than keeping the bowels gently open by the electuary of senna, the compound infusion of senna, and mild enemas, as the disease disappears on the birth of the child, or soon after. Where, however, it is combined with gall stones, of which we have seen several cases, great care and management is required, as abortion or miscarriage might take place, flooding be induced, and in this way two lives lost. Where it can be procured, the best advice should be taken. Mild and palliative means are however only to be resorted to during the pregnancy, especially oily enemas combined with laudanum.

There are two kinds of *Infantile Jaundice*, viz. that which is communicated to the infant in the womb from its mother, and which occurs after birth by the retention of the meconium or yellowish-green excrementitious substance that is found in the large intestines of the fœtus. This is called by nurses and others the *Yellow Gum;* a dose of castor oil, or even the mother's milk will generally remove this. We strongly object to the administration of calomel to newborn infants for this purpose, although we find it recommended by a popular author and lecturer in the metropolis. We have heard of a midwife who, wishing to appear learned, administered a dose of calomel 'to remove the Economy,' and the dose speedily removed both the *Economy* (Meconium) and the infant at the same time.

The other, or congenital jaundice, communicated by the mother to the child, has in some few cases been cured, but the child most frequently dies. We attended a lady who laboured under jaundice for two months, and she was delivered of a male child in the sixth, or between that and the seventh month, who lived for eleven hours, and was as yellow as the mother. We could not, however, recommend large doses of calomel as has been done in those cases. The strongest medicine the domestic practitioner should order is magnesia, a tea-spoonful of castor oil by the mouth, and the same quantity of the oil with ten drops of turpentine, and a spoonful of warm water, to be used as an injection every day till the disease yields. Such a tender subject requires, however, the experience of the most skilful.

Chronic cases of jaundice may be treated as cases of chronic hepatitis. It is a happy circumstance that this disease most frequently terminates favourably. In upwards of thirty years' practice we do not remember losing one case, except when complicated with other fatal affections. The most unfavourable are tendency to a livid appearance on the surface, vertiginous and other affections of the head, hemorrhages from the bowels, and anasarcous swellings. See articles referred to.

JELLY is one of those saccharine substances in which hydrogen is not in excess, and is a compound mucilage and acid that loses its power of gelatinizing by long boiling, and is contained in the juice of acid fruits, such as apples, currants, &c. The jelly of acid fruits is very extensively used as a vehicle for calomel and other powders, and for acidulating and rendering more agreeable barley water and drinks for the sick, especially in febrile diseases. In the preparation of jellies a greater or less proportion of sugar is used according to the taste or design of the preparer. The jelly is deposited from the juice in the form of a soft tremulous mass. It is scarcely soluble in cold water but very soluble in hot water. This is an article which no family should be without. In Scotland it is used as a sweetmeat with tea and coffee, and its value in almost every case

of sickness is not easily calculated. Jelly is easily prepared, and at no great expense, as those who possess a small garden may easily cultivate as many bushes as will furnish an abundance of fruit. And those who have to buy may easily procure fruit, as the growing taste for horticulture is every year rendering the fruit more abundant and cheaper; the steam boats, rail roads, and canals bringing many gardens, formerly more remote, much nearer our great towns.

Jam is not so delicate an article as jelly, but is cheaper and more easily prepared, and almost equally useful. Indeed, an excellent jam may be made of wild raspberries, or even of ripe brambles, fruits which in many remote districts remain ungathered.

JESAMINE, or the *Jasminum Officinale.* An oil is procured by distillation from the flowers of this beautiful and fragrant plant, which is much esteemed in Italy and other parts of Europe as an opodeldoc to rheumatic and paralytic limbs. It never obtained much celebrity in Britain; but we are certain it enters into some of the nostrums used for the relief of rheumatism, and we see no reason why it should not have a fair trial. Its only use in this country is as a perfume.

JOHN'S, ST. WORT, or *Hypericum Perfoliatum.* This plant was formerly reckoned one of great efficacy, and was reputed for the power it possessed of driving away evil spirits. Indeed, this indigenous plant has shared the fate of many others; when it had obtained a reputation for the cure of one disease it was thought equal to the cure of many others, and now it is cast aside as almost if not altogether useless. The flowers and leaves infused in rapeseed oil or any of the nut oils is, however, strongly recommended as a liniment in rheumatic affections of the joints, and from their sensible qualities we think they deserve more attention.

JUNIPER, or *Juniperus Communis*, the COMMON JUNIPER. This evergreen shrub is to be found in the mountainous districts of most of the countries of Europe, and in Great Britain and Ireland. Every part of this plant is medicinal, the wood in warm climates yielding a gum which is called gum sandaric. The tops in infusion or decoction are used as a diuretic, and the berries yield an essential oil which is separated from them by distillation. The berries are now chiefly used; they have a strong but not unpleasant odour, and a pungent warm taste, followed by a sweetish one, and afterwards a bitter. Their constituents are an essential oil, a sweetish mucilage, and a portion of bitter extract. Their active properties are elicited both by water and spirit.

The only officinal preparations ordered by the colleges are the oil and compound spirit. The oil is mostly imported from Italy, and the best berries from the same quarter. Those, however, who reside in districts where the juniper abounds may procure it by distillation. Its odour is similar to turpentine, with a hot acrid taste, similar to that of the berry, with a yellow greenish colour, and on long keeping deposits a feculent matter. It is frequently adulterated with oil of turpentine, but this is not so ready to occur as in time of war, when it sold at a higher price. Its dose is from two to six drops, on sugar, or rubbed up with water.

Compound Spirit of Juniper.

Juniper berries bruised, one pound.
Caraway seeds.
Sweet fennel seeds, each two ounces.
Proof spirit, one gallon.
Macerate for two days, then add half a gallon of water, and distil with a gentle heat one gallon.

The medical effects of juniper and its preparations are diuretic, carminative, and diaphoretic. Of the infusion of the berries or tops a wine glassful may be taken three times a day, and the oil in the dose already stated, while the compound spirit possesses all the good and bad effects of gin. Where gin cannot be procured, its place may be supplied by infusing three or four ounces of picked healthy bruised juniper berries, in an imperial pint of good whisky, for three days, and straining off the liquor. If the berries be allowed to remain longer, the tincture or spirit will not be so pleasant. The addition of half an ounce of each of the seeds of carraway and sweet fennel, along with the juniper berries, will be an improvement. The diseases in which it is employed are dropsy, and other diseases in which diuretics are indicated. See *Dropsy, Dandelion, Broom,* &c.

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KAHENCA. This tree, the bark of the root of which forms the medicine known by this name, grows in the forests of Brazil, and is of the family of the rubiaciæ, and is distinguished botanically with the appellation of the *chiococea racemosa anguifuga;* it has a yellow flower which distinguishes it from the chiococea of the Antilles, the flower of which is white. From

the facts already ascertained, this bark seems to be a most valuable acquisition to the materia medica, especially to the class of diuretics. The bark of the root contains a bitter principle, which reddens turnsole, and is crystallizable in fine needles, which are moderately soluble in water, and very easily dissolved in alcohol, especially hot. This new principle, which has been designated kahenca acid, seems only to reside in the bark of the root, and, like quinine, to contain all the medical properties of the plant; and it is important to note this, as the bulk of the dose of the entire root, from the ligneous matter it contains, would be very great, while it could not be so certainly relied upon in experimenting upon its properties. The medicine was introduced to the notice of the faculty by M. Francois, who learned its virtues from one of those satanic traders in human flesh and blood—a Brazilian slave-merchant, who informed M. Francois that he had made many successful speculations in buying dropsical negroes, as he could cure them readily by the kahenca. Our limits prevent us from narrating all the cases treated in the hospital St Louis by this medicine. We confess, however, that they have greatly prepossessed us in its favour, and the narration of one case will afford a specimen of the mode of using, as well as the good effects produced by, the kahenca. It is a case of ascites, with anasarca (see these articles) of the inferior extremities, in which the usual diuretics proved inefficacious, and a rapid cure was afterwards performed by the kahenca bark.

Harpar Pillier, an old soldier, entered the hospital 13th June. His face presented the violent tint indicative of disease of the heart, though auscultation discovered merely slight dilution of the right cavities of the organ, with a degree of chronic pulmonary catarrh. The patient had total loss of appetite, his skin was cold and dry, the scrotum was greatly distended, and the legs enormously swelled, pitting deeply on pressure, his belly was much enlarged, and fluctuation was distinct. Digitalis, squill, and other diuretics were administered without effect, and on the 18th he was ordered the following decoction:—Bark of the root of kahenca, two drams; macerate for twenty-four hours in eight ounces of water, then boil for ten minutes, and strain while hot. This decoction to be given in two doses, with two hours' interval. In the evening the patient experienced nausea or sickness at stomach, and had two loose stools. 19th. Three liquid stools; the patient mentions that he has passed a considerable quantity of water, and feels lighter. 20th. The effects of the medicine still continue, though no dose was taken yesterday. Two stools during the day, and three during the night. He has passed nine pounds of urine during the twenty-four hours. The scrotum is evidently diminished in size, and a slight change is visible in other parts; (eight ounces of the decoction, improved diet.) 21st. Medicine stopped, the patient's appetite improved, urine more abundant, and the diminution in the bulk of the inferior extremities very evident. From the 22d June to the 4th July the medicine was not repeated, as the two first doses continued their effects. The patient during this time had three stools a day, the urine continued very abundant, amounting to from twelve to thirteen pounds in the twenty-four hours, even though the quantity of drink used by the patient was moderate. On the 5tn a third dose of the kahenca was administered, the patient continued to improve in appetite and strength, while the absorption of the fluid went rapidly on, and on the 25th he was able to leave the hospital. This case, and there are others equally successful recorded, certainly affords evidence of the value of this medicine in dropsy, and we hope soon to see it adopted into the pharmacopeias. Travellers and emigrants might do much to extend the boundaries of the materia medica, and of useful and active remedial agents, in the cure or alleviation of disease. Reports, however, even grounded on hospital records, should be received with caution respecting the efficacy of new remedies. We have witnessed in many instances equal, if not more, extraordinary cases of success in the treatment of dropsical affections, without the aid of one foreign medicine, either mineral or vegetable. But such is the variety of cases, that among a number of remedies, some one diuretic will act with greater effect than another, in causing the expulsion or absorption of the fluid in dropsical cases. Squills and calomel will often effect wonders; cream of tartar and decoction of broom or dandelion root, corrosive sublimate, with muriated tincture of iron and foxglove tinctures, with sodaic powders; and in a very extensive practice in dropsical affections, we have performed cures by all of these remedies, and we now hail kahenca as a valuable auxiliary.

KIDNEYS. The glandular organs which secrete the urine. They are placed at the back part of the belly behind the peritoneum, lying on each side of the vertebral column, on a level with the two last dorsal and two first lumbar vertebræ. They are covered by a quantity of loose cellular tissue, generally containing a large quantity of fat. They are of a deep red colour externally, and their shape is peculiar and well known. The external border is convex; the internal, which receives the nutrient artery, and from which the vein and excretory duct pass out, is concave. Each kidney is invested by a firm but thin capsule, which is gradually lost on that part called the pelvis of the kidneys. If a section be made from the convex

towards the concave border, the internal structure will be seen to consist of two portions; one, occupying the circumference of the organ, is about two lines in thickness, and of a deep reddish gray colour, and is termed the cortical. The part internal to the cortical, composed of a series of tubes or vessels, is termed the tubular. We find first a series of conical papillæ formed by the convergence of a number of minute tubes, which terminate in the cup-like cavities termed calices, which again end in larger tubes called infundibula, whilst the convergence of these again forms the pelvis, which terminates in the ureter or excretory duct of the kidney, by which the urine is conveyed into the bladder.

KIDNEYS, Inflammation of. This disease arises, like other inflammatory diseases, from cold, wet, intemperance, &c.; but it is likewise liable to arise from specific causes, as stone or gravel in the kidney, or its excretory duct, diseases of the bladder, and urethra from the injudicious use of stimulating injections during the acute stage of gonorrhea, blows on the loins, and persons of a gouty habit are very subject to it. It may be mistaken for lumbago, or psoas abscess; it may be distinguished by the difficulty and pain in making water, by the acute nature of the pain, the retraction of the corresponding testicle, and pains shooting down the inside of the thigh; and from psoas abscess, particularly by some relief being afforded in that disease, by bending the thigh forwards, which does not relieve the pain in inflammation of the kidneys.

The symptoms are, acute pain in the lumbar region, with pains darting down the inside of the thigh, pain along the course of the ureter, general fever, nausea, and vomiting, pulse full and hard at first, and frequent, but becoming small as the disease advances. The urine high coloured, in small quantity, frequently bloody, and depositing a mucous or muddy sediment. Sometimes the urine is unusually pale, and secreted in small quantities; in other cases there is total suppression, followed by a urinous smell of the perspiration and the symptoms of coma. The disease may terminate by resolution, suppuration, or gangrene, which are to be distinguished by their usual symptoms.

The treatment requires to be very active. In the first place, we should have recourse to local depletion by means of cupping or leeches, followed by fomentations and sinapisms, and at the same time general bleeding should also be freely employed, according to the strength of the patient. The warm bath should also be used, and the secretion from the skin attended to and encouraged by the use of diaphoretics; the bowels should be freely evacuated by means of glysters, followed by a dose of castor oil, or some gentle saline aperient. If the disease arises from any irritation of the urethra or neck of the bladder, leeches should be applied to the perineum, and round the anus, and in all cases the acrid state of the urine ought to be corrected, by causing the patient to drink freely of thin barley water, in which a portion of carbonate of soda has been dissolved. All acids and stimulants should be avoided, and we may state that, under the hands of the domestic practitioner, mercurial medicines should never be given, as in some kinds of disease of the kidneys they are found to do harm. When the bowels have been freely opened, and after free depletion, opiates, combined with small doses of ipecacuanha, may be given to procure rest, promote perspiration, and allay the general irritation. The state of the bladder should be particularly attended to, for in some cases where the symptoms seem those of suppression, it may be found on examination that there is retention of urine and distention of the bladder. It ought, therefore, to be frequently looked to. If it is distended, it should be relieved by drawing off the urine, or if there be fixed and severe pain on pressure, without distention, warm fomentations or leeches, followed by fomentations, should be applied over the lower part of the abdomen, with a table spoonful of camphor mixture given internally every hour in barley water.

The diet throughout this disease should be mild and unstimulating, consisting of thin arrow root or gruel, or occasionally half a tea cupful of sweet milk diluted with an equal quantity of lime water. If symptoms of coma supervene, stimulants, such as carbonate of ammonia, in doses of from three to five grains, may be given, and blisters or sinapisms applied to rouse the system; but these symptoms generally follow suppression of urine, and are caused by its absorption into the circulation, so that we can scarcely expect any remedies to avail much. When suppuration is threatened, fomentations or poultices must be constantly applied to the loins, and the strength supported by giving a little wine or porter, and some animal food. The abscess sometimes points and bursts externally, and if medical aid be at hand, it should opened by an incision, and allowed to discharge externally. Sometimes the matter passes by the ureter into the bladder, and is so evacuated, at others it is effused into the cavity of the abdomen.

KING'S EVIL. A popular name for scrofula, founded on a superstitious notion which formerly prevailed, that the disease could be cured by the royal touch. Queen Anne was the last English monarch who attempted a miraculous cure of this description; but it is stated that even so late as the coronation of Louis XVI. of France it was had recourse to, for it is said that he then touched no less than 2000 persons (!!) afflicted with scrofulous diseases.

KING'S YELLOW. The impure sulphuret of arsenic. It is principally used as a colour in paintings; but it is also used sometimes as a poison for flies. The use of it for this purpose cannot be sufficiently reprobated, as like all other preparations of arsenic it is an active and most deadly poison. And being then frequently mixed up with sugar or honey to attract the flies, it is likely to be eaten or tasted by children who may chance to see it, and many deaths have been the consequence. Besides, the syrup of quassia is equally effectual in destroying the flies, and being perfectly safe, should always be preferred. The symptoms occasioned by this poison when swallowed, and the treatment then required, will be found treated of in the article *Arsenic*.

KINNIC ACID. A peculiar acid extracted from cinchona bark. The kinnate of lime forms seven per cent. of cinchona.

KINO, sometimes called GUM KINO, is the product of a tree or trees growing in New South Wales, Amboyna, and in several districts of Africa. Botanists have long been disputing as to the real character of the tree from which it is produced, and our three national colleges have each appended a distinct appellation to the origin from which the kino of the shops is procured. The Edinburgh pharmacopeia calls it the inspissated juice of the brown gum tree of Botany bay; the Dublin, of the *butea frondosa*; and the London, the gum resin of a nondescript African tree. We have no doubt they are all correct, the kino being furnished from several varieties of the same tree. The kino generally met with in the shops is in small fragments, of a dark ruby red colour, sometimes grating between the teeth, inodorous, and a sweetish, bitter, astringent taste. It is easily pulverized, and the powder has a reddish brown colour. Its constituents are gallic acid, tannin, oxide of iron, and colouring matter, and its operation on the human body is astringent and tonic. The only preparations in the pharmacopeias bearing its name, are the tincture and compound powder, which is prepared as follows:

Tincture of Kino.

Kino in coarse powder, one ounce and half.
Proof spirit, one pint.
Macerate from seven to ten days, and filter or strain

Compound Powder of Kino.

Kino, fifteen drams.
Cinnamon, half an ounce,
Hard opium, one dram.
Reduce the ingredients to a very fine powder separately, and then mix them intimately together, by rubbing in a Wedgewood mortar.

Kino likewise enters into the composition of the compound electuary of catechu, and into the compound powder of alum. Kino is a most useful medicine in obstinate chronic, diarrheas, uterine, intestinal, and pulmonary hæmorrhages, fluor albus, &c. The usual dose in powder is from ten grains to half a dram in currant jelly or jam. Or the powder may be rubbed up with mucilage of gum Arabic and a little cinnamon water, and taken in solution. With respect to the tincture, the recipe for the preparation of which is given above, it may be taken in doses of from one dram to two. It should be rubbed up, or it may be well mixed in a bottle by shaking it with three parts of mucilage of gum Arabic, and a little cinnamon water, and in this form it is equally efficacious as the powder in chronic diarrhæas, a dose taken after every loose stool. The compound powder is a most valuable and effective medicine, and if correctly and accurately prepared, it should contain one part of opium in twenty; or in other words, suppose a scruple of the powder to be ordered at bed time, it would contain one grain of opium, and in that dose will prove an effective astringent opiate in cases of chronic diarrhæa; but during the day should not be used in doses of more than five grains after every loose stool. It is a good substitute for catechu (see *Catechu*), and the tincture forms an excellent gargle for spongy gums and loose teeth. In almost every case in which we have ordered catechu, kino will be found to answer equally well. See *Diarrhœa*, *Dysentery*, &c.

KNEE-JOINT, Loose Cartilages in. Loose cartilaginous bodies are sometimes found in the cavity of the knee-joints, and when their size is considerable, they give rise to great pain and inconvenience to the patient, as they uniformly cause a degree of lameness; and sometimes by suddenly slipping between the articulating extremities of the bones composing the joint, they cause the patient frequently to fall down. When of small size, and not very troublesome, they should be confined at one corner of the joint by means of the laced knee-cap; but if the foreign bodies give rise to much pain and great lameness, so as to incapacitate the patient for his ordinary business, it may be warrantable to remove them by excision. Slight as this operation may appear, it is, nevertheless, attended with great danger from the constitutional irritation which sometimes follows an opening into the cavity of the joint; and the surgeon should take care to lay a fair and full statement of the risks, as well as of the advantages of the operation before the patient, and allow him then to decide for himself, whether he is inclined to encounter these risks, or content to remain as he is.

KNEE-JOINT, White Swelling of. This is a disease to which all joints are liable, but the knee-joint especially. The term is made to include all the different affections to which joints are liable in weak scrofulous constitutions,—thickening of the parts with an external colourless swelling; collections of matter in and about joints; destruction of the cartilages;

caries of the articular ends of the bones; inflammation of the synovial membranes, &c.

Persons under thirty are most liable to chronic diseases of the joints; but they are sometimes met with even in advanced life. These affections generally advance slowly and insidiously; the pain at first is in general trifling, often a mere feeling of stiffness, together with the swelling of the joint, and wasting of the limb first attract attention. After the disease has been progressing for some time previous, the swelling is somewhat elastic, and there are frequently large veins running over its surface. There is pain on sudden or extensive motion, or on pushing the bones composing the joint against each other, as by forcing the leg against the lower part of the thigh. When the cartilages become affected, the pain becomes more severe, particularly at night, when there is great constitutional irritation and restlessness; abscesses form around and within the joint, and the patient gradually becomes hectic. In some cases the disease assumes a more acute or active form, there is redness of the integuments, and swelling, with acute pain at the very first, marking acute inflammation of the synovial membrane; if active measures be not resorted to, this ends in thickening, or ulceration of the membrane, and the cartilages which it invests, and in sero-purulent effusion into the joint.

Treatment. If the disease commences with acute symptoms, and if the patient is seen early, a large number of leeches should be immediately applied, the limb slightly bent and laid on a soft pillow covered with oil-cloth, assiduously fomented with a decoction of camomile flowers and containing opium, for some hours after the leeches have been removed, and blisters should then be applied in the neighbourhood, and strict antiphlogistic regimen and rest enjoined; if there be much restlessness at night, an opiate may be given, after the bowels have been freely evacuated. If, as is more frequently the case, the disease be of a chronic character, we must exert all our efforts to assist nature in procuring a cure by anchylosis or stiff joint, and for this purpose we must chiefly rely on the use of counter-irritation, rest, and methodical bandaging, combined with the use of the constitutional remedies, as iodine, &c. which will be found detailed under the head of *Scrofula.* With regard to the local remedies, counter-irritation is best employed by enveloping the swelling in a large blister, and when this has healed, friction with the hand and dry flour should be used; we should next insert two or three issues, by making extract, each about the size of a shilling, either by the moxa, or what is more easily done, with caustic potass; and when slough have separated, dressing the sores with savine ointment, so as to keep up a constant discharge; these issues must be repeated from time to time, and perfect rest enforced. Any abscesses which form in the neighbourhood should be opened early and freely; if there should be considerable elastic swelling without much pain, the use of methodical bandages may be tried; for this purpose the swelling, after being well washed and thoroughly dried with a coarse towel, should be well rubbed with strong camphorated spirit of wine for at least half an hour; a roller is then neatly applied from the toes up to near the swelling, broad stripes of the following plaster, spread on soft leather, are then to be applied over the swelling. Take of—

> Soap plaster, one ounce and a half.
> Gum ammoniac, powdered and sifted, two drams.
> Mercurial ointment, two drams.
> Melt together, and when nearly ready, add two drams of powdered camphor, then spread on soft leather.

The plaster so prepared should be cut into stripes about an inch broad, and then stripe after stripe should be applied, taking care that their edges always overlap each other, and that they are not drawn too tight; the roller is then to be continued over the plaster and up to the middle of the thigh, and the limb laid in a slightly bent position and fixed to a pillow by one or two broad slips of bandage pinned to the pillow; by this method complete rest is procured, and at the same time a gentle and gradual degree of stimulation is applied to the swelling, which, together with the compression, excites the absorbents of the part to action, and the swelling is thereby frequently much diminished.

When the constitutional symptoms run high, and hectic fever sets in, whilst the local disease shows little tendency to abate; amputation of the limb should be had recourse to, and its beneficial effects, even where the patient has appeared almost exhausted, are often so wonderful and rapid that it should never be refused when advised by the surgeon, however unpromising the case may appear.

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LABOUR. By the term labour is meant that action of the womb by which its contents are expelled at a period when the infant can live independent of the parent. There are four kinds of labour, viz. natural, laborious, preternatural, and complex. As it is the first of these orders which chiefly concerns the non-professional reader, we shall first describe the process of natural labour, and then briefly mention the circumstances which constitute the other kinds, and the management necessary in the absence of medical assistance. In all labours there are certain progressive advances which have been familiarly termed the stages of labour. These are three in number, the first consisting of the opening of the mouth of the womb; the second of the actual passage of the infant; and the third of the separation and expulsion of the placenta or afterbirth.

Phenomena of the first stage of labour. 'In some cases previous to the commencement of labour, there is a great change in the feelings of the woman, and in the apparent bulk of her belly. Sometimes shivering or trembling or a bowel complaint usher in labour, sometimes there is a watery or slimy discharge, slightly tinged with blood, from the vagina, for a day or two previous, but more generally labour commences by pains in the belly, at first irregular in their recurrence and of short duration. These pains which are in fact the contractions of the womb, by degrees increase in frequency and force, and gradually open its orifice, partly by thickening and shortening of all its component fibres, and partly by the protusion of the membranes containing some of the liquor amnii like a soft wedge through its edges. The duration of the stage does not in general exceed twelve or fourteen hours, and its most tedious part is the dilatation to such an extent, that a crown piece could be introduced through the mouth of the womb. In some rare cases, the opening of the womb goes on imperceptibly for days or even weeks previously to the commencement of pains, and then this stage is completed in a few minutes.'

Second stage of labour. 'When the mouth of the womb has dilated as above described, and the membranes have burst, discharging the contained fluid in which the child lay, the pains become more severe and bearing down and are of longer duration, and they are accompanied by pains in the back and cramps in the thighs and legs; the pulse becomes quicker, the skin becomes softer, and the patient frequently perspires freely; every successive pain now pushes the head upon the orifice of the vagina, and forces out the soft parts in the form of a swelling, constituting what is termed the perineal tumour; by this means the orifice is gradually opened, and the head is expelled by a severe pain which generally ceases immediately afterwards; the pain, however, soon recommences, and the body accommodating itself to the direction of the passage, is expelled in a slanting direction up towards the abdomen of the mother; this is commonly followed by the discharge of some watery fluid accompanied by a few coagula of blood. The time required for this process varies in different women and in the same woman at different times, according to the force and frequency of the pain, the size, dilatability of the parts, and size of the infant's head; it is more tedious, in general, in first than in subsequent labours. During the progress of this stage the head of the child is compressed by the action of the womb, which causes both a diminution in its bulk and also prevents it from proving troublesome to the parent by any movements of its own.'

Third stage of labour. 'In general some time elapses between the birth of the infant and the expulsion of the afterbirth. If during this interval the abdomen be examined, it will be found relaxed and the womb is felt contracted; in a short time one or two griping pains are felt, the navel string becomes tense and lengthened, and if it be gently pulled, the placenta is felt advancing with a gurgling noise, preceded by some coagulated blood. In more than the majority of cases the afterbirth is thus expelled by the natural efforts, within less than an hour after the birth of the child. But sometimes these are inadequate, owing to its being retained by irregular contraction of the womb, or from its being diseased and adherent to that organ.'

Management of the patient during labour. 'In general all that is requisite during the progress of the first stage is attention to ventilation of the room, and making the necessary preparations in dressing or guarding the bed as it is termed; the mattress is placed uppermost, and a dressed skin or oiled cloth laid over that part of it on which the body of the woman is to lie; a clean sheet is then laid on in the usual way, and then another folded in the form of a roller across the bed and the ends folded in at the sides; a coarse blanket folded within a sheet should then be placed immediately over the place where the patient is to rest, so as to absorb any moisture and then the other bed-clothes are laid on in the usual manner, and they should

be as light as possible so as not to over-heat the patient. Attention should be paid to the state of the bowels and urinary bladder previous to the commencement of labour, but should this not have been done, a purgative enema should be administered at once, which will serve to clear out the lower bowels and also will generally cause the bladder to be emptied. If the bladder be much distended and the patient unable to make water, no time should be lost in drawing it off, which will be found a more difficult operation when the labour has advanced, and if this be not attended to, it exposes the patient to the risk of rupture of the bladder during the progress of the second stage. If the patient feels thirsty, a little tea or barley water may be given occasionally. If vomiting comes on, it is in general rather a favourable symptom as it tends to dilate the mouth of the womb, and a little warm chamomile tea may be given to clear the stomach; but if the vomiting continue, or if nothing but pure phlegm be thrown up, accompanied by great pain, a half grain opium pill may be given, or bleeding be had recourse to; but in such cases a medical man should always be sent for. If at the end of twelve hours from the commencement of labour, the mouth of the womb be not fully dilated, measures must be resorted to for procuring that end, because the protraction of the first stage beyond twelve or fourteen hours may be productive of much mischief, by debilitating the patient and from other causes. Blood-letting, opiate glysters, or stimulating clysters, and supporting the edges of the mouth of the womb during a pain, are severally necessary; according as the cause of protraction is the natural toughness of the parts, relaxation of the pains, or the unexpanded state of a circular band of fibres at the mouth of the womb.'

Rules for the management of the second stage.

'When the mouth of the womb is fairly dilated and the pains become frequent, the patient should be put to bed in the position in which she is to be delivered, that is, lying on her left side close to the edge of the bed with her legs slightly bent and a pillow placed between her knees. On the rupture of the membranes, which is marked by the discharge of the waters, the position of the child's head should be carefully examined, lest one or both hands or the navel string be pressed down along with it, and the progress of the head should be watched till it come down on the external parts. Meanwhile the pain in the back is to be relieved by pressure against the lower part of the loins. Whenever the swelling of the perineum caused by the pressure of the head is felt, the parts should be constantly supported by the practitioner's left hand to prevent their being torn, whilst with the right he feels whether or not the neck of the child is free from the navel cord or if that cord be twisted round the neck. If this be the case, he should introduce the fore-finger of his right hand between the cord and the fore-part of the neck, and slacken the cord the instant the head is born; the left hand is still to support the perineum until the body of the child is finally expelled. Then provided the infant has breathed freely it may be separated from the mother, which is done by tying two ligatures of narrow tape upon the cord, the one at about two inches from the navel of the child, and the other about an inch or two nearer the mother. The cord is then cut between the ligatures, and child given to the nurse to dress: if the patient be much exhausted, a slight cordial may now be given, and the surgeon waits for the commencement of the third stage. If the grinding pains which usher in this stage do not soon commence, the finger may be introduced along the cord whilst with the other hand slight traction is made on the lower end of the navel string; in doing this no forcible pulling is allowable, all that is intended being merely to stimulate the womb, to contract and throw off the afterbirth; if this does not take place within the hour it is necessary to introduce the hand within the womb, and gently and gradually extract the placenta, and this is absolutely necessary whenever flooding takes place however short a time may have elapsed. In such cases, it is almost needless to say that the patient is in great danger unless prompt assistance be rendered, and that can only be effectually given by a medical man; and this is absolutely necessary when such cases are accompanied by heat of skin, headache, thirst, increased heat, dryness of the passages, and full quick pulse. In such cases, we repeat, free bleeding will be found of the utmost service, but of course this would be obviously improper in cases attended by symptoms of exhaustion. In such the treatment we have formerly recommended, with the occasional exhibitions of a little wine and water, is the best. In some cases rigidity of the membranes containing the waters, or an excess of the contained fluid, may give rise to protracted labour. In such cases the membranes should be ruptured by the finger, but before doing so, the position of the child should be accurately ascertained, as any mal-position is with difficulty remedied after the waters are discharged, and the mouth of the womb should be dilated to the size of a crown piece. Such are the only cases where the non-professional can ever be of service, by affording proper medical treatment. In the second class of cases we have spoken of, it becomes necessary either from total want of action in the womb, or from dangerous constitutional symptoms supervening, owing to the long-continued pressure of the child's head on the soft parts, to deliver immediately by means of instruments; and in the third class, from a disproportion between the size of the child's head

and the parts through which it must pass, either from deformity in the mother, or from the large size of the child, it becomes impossible to save both mother and child, and then the child must be sacrificed and extracted piecemeal; or if even by such means, owing to excessive deformity, sufficient room cannot be obtained, or if rupture of the womb, or sudden death of the mother has taken place, the child may be removed by an incision through the abdominal parietes, or what is termed the Cæsarian operation. It is needless to say that in any of these cases, all the skill, coolness, and decision of an experienced surgeon is required, and the same holds good in cases of preternatural labours, where, from the child presenting in an unnatural manner, it cannot be delivered till the surgeon has introduced his hand into the womb, and turned the child, which is an operation attended with much difficulty, and with danger to the patient, if not properly performed, as any awkward movement of the fingers might cause rupture of the womb.'

Laborious Labours. 'When the head of the infant is pushed foremost as in natural labour, and yet the delivery not completed in twenty-four hours from the actual commencement of labour, the case is styled laborious. Such cases may terminate in three ways; 1. The natural powers may finally accomplish delivery with due assistance, and proper medical treatment. 2. Delivery may be accomplished with safety both to mother and child by mechanical means in the hands of an expert practitioner. 3. It may be quite impossible to draw the infant alive through the natural passages.'

'As the first of these orders of laborious labours is the only one in which a non-professional person can ever be of any service, we shall state the various causes which may produce it; the treatment which ought to be adopted, and then very briefly state the causes which give rise to, and the symptoms which attend the two last classes of laborious labours, which will be sufficient to point out the necessity of calling in proper medical assistance. In the first class of laborious cases, the labour may be rendered tedious from deficient action of the womb; in other words, the labour pains are slight and irregular; this arises generally more from debility of the womb than from general debility of the system, unless that has been artificially induced, as by improper management. It has been repeatedly noticed that women almost in the last stage of pulmonary consumption bear children with the greatest ease. Sometimes the want of progress is owing to the waters having been prematurely discharged, in other cases to the effects of depressing passions, as fear, &c. This state requires great prudence and caution in the treatment; violent remedies should not be had recourse to for the purpose of forcing matters, such as the exhibition of strong purgatives, vomits, &c.; and above all, stimulants should be carefully avoided unless given under the guidance of a regular practitioner. A little light nourishment and some drink may be allowed in small quantities from time to time, and a common glyster administered. The patient should be kept as cheerful and quiet as possible, the room well ventilated, and if this state occurs during the first stage of labour, the patient should not be confined to bed; but allowed to sit up or lie down as she feels inclined, and occasionally to walk about the room. When this state depends upon rigidity of the mouth of the womb or passages, as is frequently the case in persons who have not had children till advanced in life, or in strong robust young women, free bleeding will be of great service.'

Complex Labours. 'This term is applied to cases where the labour is complicated by some untoward circumstance, not enumerated in any of the former classes of labour. The principal complications which occur are, 1. Plurality of children. 2. Falling down of the navel string. 3. Flooding. 4. The presence of a rupture at the navel. In the first, or the case of twins, one of the infants is generally a cross birth, as it is termed, owing to the head of the one infant being opposed to the breech of the other, but as in most cases of twins the infants are small, the feet of the one whose breech presents can be gently pulled down and delivery readily effected. Still it is always proper in such cases to call in medical aid; as a general rule not more than an hour should be allowed to elapse between the birth of the first, and the extraction of the second child. The first born child should be marked.'

'In cases where the navel string falls down, the life of the child is endangered from the stoppage of the circulation from pressure on the cord; in such cases where the cord is felt through the membranes before they burst, a practitioner should be called in, and the operation of turning had recourse to; but where the waters have been discharged, this is attended with too much risk to the mother to be warranted, and the child must take its chance.'

Flooding. 'We have already treated of this under its proper head, and therefore we shall merely state, that when flooding takes place in the first stage of labour it is generally owing to the after birth, presenting over the mouth of the womb, and in such cases it is imperative to call in medical assistance, that delivery may be accomplished as speedily as possible. In the second stage it seldom or never takes place. In the third stage it is requisite to extract the after-birth at once by introducing the hand previously well oiled, gently detaching it. Afterwards, the treatment recommended and detailed

in the article on *Flooding* is to be adopted. In cases where a rupture at the navel is known to exist, a bandage and compress should be applied over the part previous to the actual commencement of labour, and an assistant should further support this by pressure with the hand during the pains. In all cases after delivery is completed a slight cordial may be given, and a binder firmly applied round the belly from over the haunch bones upwards; and beneath it, over the womb, there may be placed a folded soft towel, to exercise still further compression over the womb, and so guard against flooding. The blanket placed to absorb the moisture may then be removed, and the patient allowed to rest for a time, till she feels able to allow her clothes to be changed.'—*Hamilton's Outlines of Midwifery.*

LACHRYMAL GLAND. The gland which secretes the tears. This body is situated at the upper and outer corner of the orbit, in a depression on the orbital plate of the frontal bone, behind and above the superior eyelid. It belongs to the order of conglomerate glands; that is to say, it consists of a number of small granules, each forming a secreting structure; from these granules there arise excretory ducts, which emerging from the gland at its anterior border, run downwards between the conjunctiva and the broad tarsal ligament, and open in a row upon its free border. The use of the tears is to moisten and lubricate the surface of the conjunctiva, and to wash away the particles of dust or other foreign substances which may lodge on its surface. The secretion of this gland is increased by the presence of foreign substances, or other causes producing irritation of the conjunctiva, also by certain mental emotions; hence the flow of tears in grief, extreme joy, &c.

LACTATION, OR NURSING. Before entering on the more immediate consideration of lactation or nursing, we shall present the reader with a short anatomical description of the female breast. The breasts of woman consist of a larger conglomerate circumscribed gland mixed with a considerable quantity of fat; the glandular substance is composed of a congeries of small convoluted arteries, veins, and nerves; the ultimate arteries, before they terminate in their correspondent veins, detach minute branches for the separation of the milk, which uniting as they proceed to the nipple, form small canals called lactiferous tubes, or in more common phraseology, the milk veins; these are about seven or eight in number, communicating with the basis of the nipple, and generally opening at its apex by the same number of ducts, though sometimes two of them open by a common orifice. The ducts adhere to a strong ligamentary elastic substance which is continued from the gland, and terminates with the ducts in the nipple; this ligamentary substance and these ducts which it contains are capable of extension and contraction to a great degree, and in their natural state are moderately folded, curled, or corrugated, by which mechanism the place of valves is supplied, and the involuntary eruption of milk prevented, unless the distending force be very great from the accumulation of too great a quantity. The whole substance of the nipple is spongy, elastic, and subject to different changes, becoming sometimes hard, sometimes flaccid, sometimes flat, and sunk into the breasts, and sometimes prominent, and full of small tubercles; the nipple is surrounded with a disc or circle of a different colour called *areola*, and on the inside of the skin of the areola are disseminated little glands known to anatomists by the name of sebacious glands. These supply an oily fluid to defend the areola from abrasion, which would otherwise be the consequence of secretion, and likewise to glue up the mouths of the lactiferous tubes or milk veins. The skin upon these parts is extremely thin, and consequently the nervous papillæ lie very bare, and are very liable to irritation. The breasts usually contain more or less milk before a woman is delivered, or at least soon after her labour; this is called in technical language *colostrum*, (and in Scotland as applied to the milk of animals, *biest*); the term is compounded of two Greek words, signifying to agglutinate, so called either because it is the first food of the young, or from its being at that time peculiarly glutinous. If a child be applied in three or four hours after its birth, or in fact as soon as circumstances will permit, it draws this gradually out, and by the repeated and agreeable excitation of sucking induces a gentle secretion and evacuation of milk from the breast, so that it is never too empty or too much distended; hence the mother is spared the pain and accompanying milk fever which would otherwise occur. Its mother's breast is unquestionably the most natural position for a new-born child, for at this tender age it is not capable of supporting its own heat. (See *Cold*). Thus, we see in many animals that for a certain period after birth the young ones shelter themselves beneath their mother to preserve a degree of warmth, which of themselves they could not produce at this early age. 'Every mother,' says Boer, 'who has been strong enough to carry and nourish her child during the nine months of pregnancy, is also strong enough to afford it the breast for some time after birth, and to this there are very few exceptions.' The child can suck the moment it is born, for the power of instinct is quite as strong in this case as in the brute. If healthy and vigorous it immediately seeks for its mother's breast, and if it does not find it, it sucks at every thing that touches its mouth, even its own little hand, or the finger that is presented to it. We trust the preceding short but simple, and we hope intel-

ligible anatomical description of the human female breast, will convince any attentive reader how very admirably adapted that organ is to answer the great ends for which it is framed.

The advantages of an early application of the child to the breast, says Dr Dewees, 'are, 1. The child retains the early faculty of sucking with which it is born, for if this be not attended to for several days, because (as they say) the mother has no milk, it will lose it, and much trouble be given to recal it. We have witnessed this but too frequently. 2. It will by its gentle action upon the nipple gradually stretch it, and accustom it to this extension before the breasts become swelled with milk, and tender from distension. 3. By its mouth stimulating the nipple an earlier secretion of milk will take place. 4. The milk will be drawn off as fast as formed, which will prevent the pain which constantly arises from its accumulation, as well as the swelling which is almost sure to follow its formation; this swelling shortens the nipple, and renders the extraction of the milk more difficult, increases the efforts of the child by which the external covering of this little body becomes irritated, and sore nipples now ensue to the great misery of the mother. 5. The early secreted milk has a purgative quality attached to it, by which the infant profits by its assisting to carry off the meconium. The milk fever, which some people think so necessary for obtaining a supply from the breast, is merely the result of their own neglect. If the child be not applied no fulness of the breasts is perceivable, and a small quantity of watery fluid only comes out; at length, if the breast be not drawn, it swells, the face flushes, the skin becomes hot, and all the common symptoms of milk fever are induced. It is not to be wondered at, says Mr White, in his valuable 'Treatise on Lying-in Women,' that a secretion that has been so many months in preparing, and which is intended to flow in such large quantities for so many months to come, should, if driven back, in a few days occasion a fever; especially when we consider that the milk which is secreted in the breast for several days after delivery, is, when in its purest state, thin, stimulating, and purgative, for the wise purpose of cleansing the child's stomach and bowels of those viscid blackish green fæces, called meconium, and that this milk must be rendered very acrid by its stagnation in the breasts for several days together.' 'I have observed,' says another great authority, Dr William Hunter, 'in women who do not give suck, and in nurses after they leave off suckling, that the axiliary glands (the glands in and near the arm pit) become painful, swell, and sometimes suppurate. Is not this owing to the acrimony which the milk has acquired by long stagnation in the breast, and affecting the gland through which it must pass in absorption? I have observed too,' adds Dr Hunter, 'that there are at the same time fevers of the intermitting kind, but very irregular in their return, which come on with a rigour, and go off with a sweat, and are not such fevers raised by absorption of acrid milk?

As often as the child feels thirsty, or in other words hungry, it betrays evident signs of wanting the mother's breast; this one can instantly perceive if the child be lying by its mother's side and enjoying the warmth of her body. In fact, the maternal warmth is as necessary to its well doing as the wing of the hen to the newly hatched chicken. Children suck best when lightly but sufficiently warmly clad, have their feet and hands free, and can lie by their mother's side. Whatever renders the nipples soft and tender, renders the operation of sucking difficult, and there are few more distressing or afflictive affections can visit a nurse than sore, tender, or chopped nipples, and even if soft, without being sore, it is sufficiently troublesome, as the child can draw them out too easily. They should be firm and less sensitive of irritation; but they are almost in every case rendered too tender and delicate by being constantly covered with soft and delicate clothing. The best means of preventing too great a degree of softness and delicacy of the nipples, is by frequently exposing them to the air during the latter months of pregnancy, and washing or bathing them with rose water in a pint of milk in which is infused half an ounce of bruised oak bark, and the same quantity of Peruvian bark, for a month or six weeks before labour; or by infusing in the same quantity of rose water an ounce of the common bramble leaves, or the bark of the root of the same plant. In cases too where there is reason to apprehend that sore nipples will occur from former attacks of the disease, some of these washes may be used with the addition of a little brandy and laudanum two weeks before delivery. Indeed, brandy or pure spirits with a little eau de Cologne, or lavender water, answers very well as a wash in most cases. If a mother does not suckle her first child, nor have her breasts drawn, she will seldom have much milk secreted in her subsequent lying-in, and what is secreted will easily be absorbed. In a few hours therefore, after delivery, indeed as soon as the mother has had a little rest, she should sit up in bed, a warm shawl thrown over her shoulders, have the nipples bathed with a little warm milk and water, and put her child to the breast whether there be signs of milk or not. This should be repeated four or five times a day, but at or during the night it is not necessary that the breast should be given the child, unless it cries for it, and really appears to be hungry. At the age of six or eight weeks, when the child begins to notice and express its pleasure by

smiling, the mother should suckle it at certain hours, and accustom it to want during the intervals; for instance it should only be applied every three or four hours, and the intervals of suckling should not be guided by the convenience of the mother, as it frequently is, but by the wants of the child; and if possible it should be accustomed to want during the night, giving it a suck before going to sleep, and another very early in the morning. A nurse or mother should lie very high with her head and shoulders, and should sit up in bed when she takes her food, and as often as she suckles her child, and should kneel whenever she has occasion to pass urine, which should be done frequently. This frequent upright posture is of the utmost consequence, (especially during the first month after delivery, the period to which these instructions more immediately apply), and cannot be too much inforced. It prevents the lochia or discharge from the uterus or womb from stagnating, the stools and urine from being too long retained, and promotes the contraction of the uterus, together with that of the abdominal muscles. The nurse also, during this period, more especially should keep her breasts and shoulders well covered in order to promote the secretion of the milk.

A more mistaken opinion cannot obtain or be acted upon, than that it is always necessary to add rich and stimulating food to the diet of a woman who is suckling. The stomach thus soon becomes overloaded and deranged, and so far from producing an increase in the secretion of milk, the reverse is the case, and diminution is the result; and this is not unfrequently observed among hired wet nurses. A healthy young woman accustomed to country air and life, is induced to take a wet nurse's place in a city or great town. She is now confined in a great measure to the house, takes little exercise, keeps later hours, and eats at pleasure of richer but not better food than she has been accustomed to, and in order to keep up her milk, is allowed a certain quantity of ale or porter daily. With all this her milk, to the surprise of her mistress, diminishes in quantity, and under the supposition that more support is still required, a glass of wine is perhaps recommended in addition to what she had before. The result of all this is that the bowels become deranged, the nurse suffers severe throbbing, headache, the face is flushed, the skin hot, and the pulse full and hard. Under these circumstances the very means which have been used to increase her milk, have had the effect not only of diminishing its secretion, but of deteriorating its quality. This, however, will be found discussed at greater length under the article *Nurse*. Purgatives, strict antiphlogistic regimen, and in some cases even venesection or blood-letting, must be had recourse to before the health of the nurse and the quantity and quality of her milk can be restored to that of her late state and circumstances, when she arrived full and plump from her native vale. Let us not, however, be misunderstood, for we do not pretend to deny that a moderate increase of food, more especially mild, unirritating fluids, have a considerable effect in increasing the quantity of milk; the nurse, moreover, requires this addition, owing to the change in her system which has now commenced. Children are allowed the breast a longer or shorter period according to the customs, prejudices, and habits of the nation or country of their birth, and it is frequently a question how long a child ought to be suckled. The teeth begin to distend the gums towards the seventh month; this is known by the increased secretion of saliva, and by the child putting every thing into its mouth that it can lay hold off. This is pure instinct, and it will now take a piece of soft bread more eagerly than the breast, nor does it seem to care for a diet that is entirely fluid. In the ninth and tenth month it becomes still less inclined to suck, and the milk begins generally to decrease in quantity. The proper time for weaning will vary according to the constitution of the mother, and of the infant, and of the early or late appearance of the teeth. It is impossible to establish any general rule as to the age at which an infant should be deprived of the breast milk, for all are not fit to be weaned at the same time. In general, lactation or suckling may be continued for nine or twelve months; it may be discontinued when the infant is strong, plump, and vigorous at the eighth, but it must be prolonged when the infant is feeble and delicate, and when the teeth appear slowly, as in ricketty children. Dr Ryan, with whose opinions on this and several other subjects connected with the treatment of children, we generally agree, observes: 'When the child is strong and healthful, it may be weaned after the first twenty teeth appear, which is from the sixth to the ninth month; but when weak, feeble, and unable to walk, it should be suckled for fifteen, eighteen, twenty, or thirty months, provided the milk is abundant and good.'

Buffon informs us that in Italy, Holland, Turkey, and through the whole Levant, children are rarely allowed any other food than the breast milk during the first year, and the savages in Canada suckle for four or five, and sometimes for six or seven years. Some practitioners think, on the contrary, that prolonged lactation injures the mother, and induces scrofula, hydrocephalus, &c. in the infant; but the faculty in general maintain that it is wisest to continue lactation as long as possible, or in other words, to be guided by the principles already stated. Some have advised children to be suckled until they were two years old. Many women menstruate and become pregnant at the end of

twelve months, and this, when it occurs, should induce the mother to commence the process of weaning. Observation has confirmed us in the opinion that allowing a healthy child the breast longer than a year is highly detrimental, as it weakens the mother, deteriorates the milk, and renders both nurse and child more liable to disease. Weaning, however, should not be commenced during teething, or when the child is sickly. In the articles *Weaning* and *Weaning Brash*, there will be found some useful instructions for the management of children at this important period, and in the meantime we caution mothers and nurses against the very pernicious practice of administering anodynes or opiates to the child. Under the article *Anodynes* we have given some cautions on this head; but the practice is so general that these cannot be too often repeated. See *Teething*, *Nurse*, *Nursery*, and those articles on the diet of children, such as *Arrow Root*, *Sago*, &c.

LADIES' SMOCK, or *Cardamine Pratensis*, otherwise Cuckoo Flower. The flower of this indigenous plant, which is the part used in medicine, has a purplish colour, is almost inodorous, and has a slightly acrid bitterish taste, possessing antispasmodic, diaphoretic, and stimulant qualities. This is an old medicine newly revived, and which, after being expelled the materia medica of the colleges, has been readopted. It has of late been recommended as an antispasmodic in nervous and convulsive disorders, such as St Vitus's dance, hysteria, epilepsy, and even asthma, and is given in doses of from one dram to two of the powder of the flowers twice or three times a day. Like many of the other remedies used for these diseases, it has very little sensible operation, and that is diaphoretic.

Berger and Nagel found the flowers beneficial in epilepsy, but others state them to be inefficacious. The saturated infusion of the flowers and leaves produced a copious and fœtid perspiration in the trials made by Berger on the effects of this plant in epilepsy. It appears, however, to possess powers worthy of further trial, and is in abundance in many districts of the three kingdoms, flowering in the spring, or in blossom, as one of its names imports, when the cuckoo makes her appearance; and especially as it is not a narcotic or dangerous remedy, those labouring under any of those distressing, and in general deemed incurable maladies, cannot lose much, and may gain very considerably, by giving it a trial. Although the flowers only are officinal in our pharmacopeias, it appears from Berger that the leaves may likewise be used.

LARYNX. This is the anatomical name for what is termed the box of the windpipe. The larynx is placed at the upper part of the windpipe, and its prominence in the living person readily points out its situation in the forepart of the neck. It is composed of several cartilages, ligaments connecting these cartilages, muscles which move them on each other, and a fine mucous membrane which lines it throughout, and which is continuous with that of the mouth above, and the windpipe below it, is abundantly supplied with blood-vessels and nerves. So exquisitely sensitive is its mucous surface, particularly at the upper parts, that even a drop of water or a grain of salt passing into it, or in common language, going the wrong way during swallowing, produces the most violent and distressing cough. Hence the reader may imagine what violent symptoms of suffocation will result when foreign bodies, like pease, cherry-stones, &c. fall into it, or when from inflammation its mucous lining is so swollen and infiltrated, as almost entirely to exclude the air from passing into the trachea, thus inducing symptoms of suffocation. In such cases a surgical operation is necessary, which consists either in making an opening into the larynx itself, if the foreign body be entangled in it, or if there be disease of the larynx, then it becomes requisite to open the forepart of the windpipe, which is termed the operation of tracheotomy.

The modulations of the voice are principally produced by the action of the muscles which moves the various cartilages of the larynx, and thus tighten or relax the ligaments which pass across it from before, backwards, (the vocal chords) and by diminishing or increasing the size of its aperture, produce the various sounds by thus acting on the air which is passing out of the lungs by the trachea. The prominence of the larynx is less marked in females and boys than in adult men; but at the age of fourteen or fifteen there is a marked increase in its development in boys, and the voice begins to change, whilst in females it continues less prominent throughout life.

LATERITIOUS SEDIMENT. A reddish thick sediment which occurs in the urine of patients labouring under certain diseases of the digestive and urinary organs. It also occurs in fever and gout; in this last it is considered by some a favourable symptom.

LAUDANUM, or the tincture of opium; the name of laudanum being applied to it by Paracelsus, from its praiseworthy effects in producing sleep, soothing irritation, &c. It is an excellent preparation of opium, although it is inferior to some of the modern preparations of that drug. It is prepared by dissolving one ounce of crude opium sliced into twelve ounces of brandy, macerating for a week or ten days, and then filtering it through paper. The dose of laudanum is from twenty-five to forty drops for an adult, and less in proportion for children; but it is an unsafe remedy except in professional

hands. The effects and uses of laudanum are the same as those of opium, and together with the treatment in cases of poisoning by this class of narcotics, will be found detailed under that head.

LAVENDER, or *Lavandula Spica*. This plant is a native of the south of Europe, but cultivated in our gardens, and in the neighbourhood of London in the fields, for the purposes of the apothecary and perfumer. The flowers, which is the part directed to be used by the colleges, and indeed the whole plant, has a warm bitterish taste, with an agreeable fragrant smell, both of which qualities it derives from an essential oil which it yields readily to alcohol, and by distillation. This is one of those plants that might be more extensively cultivated by the amateur, and even by the cottage gardener. It delights in a poor, dry, calcarious, gravelly soil, and when grown on a soil of this description, yields a finer and richer oil in greater abundance. A plantation of lavender lasts four years, and is propagated by sowing the seeds in the spring, and the plants may be transplanted in the September or March following, in rows two feet apart, and kept clean from weeds. The second season the plants will yield a few flowers, and a full crop the fourth, and will continue productive four, and sometimes even six years after. The spikes or flowering tops are cut off or gathered in June, tied in small bundles, and carefully dried in the shade. There are two varieties of lavender, but the broad leaved kind is to be preferred for several reasons, especially as it yields nearly thrice as much oil as the other. Lavender has been long employed in medicine, as a warm stimulant aromatic, and possessing slightly errhine properties. The colleges order an essential volatile oil and a spirit, both of which are obtained by distillation, and a compound spirit. The oil is generally imported; it has a very fragrant odour, a lemon colour, and a warm taste, possessing all the properties of the flowers in a very concentrated form. It is used in doses of from one to five drops on a bit of lump sugar, in nervous headache and hysteria; but its principal consumption is as a perfume, and for this purpose it is added to sulphur ointment to conceal the smell of the sulphur, an expense and trouble the college might have as well spared, as neither oil of lavender or any other perfume will cover the smell of sulphur applied in the form of an ointment, especially if the patient is heated.

The simple spirit of lavender is prepared by macerating two pounds of the recent or fresh flowering tops, on one gallon of rectified spirit for twenty-four hours, and adding as much water as will prevent empyreuma or the burning of the still, (say half a gallon or more, according to the form of the still) and slowly distilling off one gallon. This spirit is merely a spirituous solution of the oil, and may be made by dissolving two or three drams of the oil in one gallon of rectified spirit, and distilling in the same way. This spirit enters into the composition of the compound spirit, and into the compound camphor liniment:—

Compound Spirit of Lavender.

Simple spirit of lavender, twelve ounces.
Spirit of rosemary, four ounces.
Cinnamon bark and nutmeg, each one dram.
Red Saunder's wood, sliced, two drams.
Macerate for fourteen days, and strain.

Occasionally the simple spirit of lavender is used as a cordial in doses of a tea spoonful or on a lump of sugar; but the last article is one of the most common, and even fashionable cordials, used in doses of from ten to sixty drops on sugar, or when mixed with two parts of spirit of hartshorn, it is taken in doses of a tea spoonful in a glass of cold water, in cases of fainting, debility, &c. The last formula is a very useful medicine to those who suffer from indigestion and acidity or heartburn, as the spirit of hartshorn, or water of ammonia, as it is now called, corrects the acidity. As this last preparation is seldom correctly prepared, it may be made by any domestic apothecary or cook.

LAXATIVES. The term applied to gentle purgatives. See *Cathartics*.

LEAD. Lead, in its metallic state, produces no effects on the system; but when oxidized or combined with certain acids, its effects are powerful, and when inhaled in the form of fumes, or taken internally either in large and continued doses as a medicine, or by accident, as from drinking cyder or certain acid wines which have been kept in leaden vessels for any length of time, or which are sometimes intentionally adulterated with lead to give them a sweetish taste, it produces violent symptoms, somewhat resembling the worst form of iliac passion, and denominated painters' colic; in some cases it produces partial paralysis. But although the preparations of lead are certainly dangerous poisons when given rashly in too large a quantity, or too long continued, they are, when judiciously used, most active and efficacious remedies. Thus, the acetate or sugar of lead, when given combined with opium in the form of pills, consisting of two grains of the acetate to one grain of opium, is found to check internal hæmorrhages, violent diarrhæas, and other immoderate discharges better than any other remedy we are acquainted with, and it is astonishing how rarely any disagreeable effects follow; and applied externally as an astringent and refrigerant wash, in chronic ophthalmia, inflammatory swellings, &c., its beneficial effects are too well known to require mention. See *Iliac Passion*, *Sugar of Lead*.

LEECH or *Hirudo Medicinalis*. In the

article *Bleeding by Leeches*, in Appendix, to which we refer, much useful information will be found on the mode of applying this truly useful and life-saving reptile. Naturalists place the medicinal leech in the class *vermes* and order *hilmentheia*, and although this is considered the very lowest order of animals, it contains this, if not many other individuals, who are serviceable to man. This species is elongated, of an olive black colour, with six yellow ferruginous lines above, and yellow spots below. It is generally two or three inches long when lying in its natural state, though it is capable of very great dilatation. The body is composed of numerous annular wrinkles, which may be seen projecting, and by which the animal can expand or contract itself at pleasure. The head is smaller than the tail, the latter terminating in a circular muscle or sucker which, when applied to any substance, easily adheres. By means of the tail, it fastens itself with ease and security, while it extends the other parts of its body in any direction. Its head is furnished with three teeth, of a substance resembling cartilage, which are so situated as to converge when the animal bites, and to leave a triangular mark on the skin. These teeth are so strong, that by means of them the animal can pierce the skin of an ox or a horse, as well as that of a man; and through the holes which it forms it sucks the blood. The stomach is a kind of membranous skin divided into twenty-four small cells. If suffered to retain the blood which it has sucked, this is said to remain in the stomach of the animal for months together, and to afford support to the animal the whole of that time. This, however, appears to us one of those apocryphal assertions which has no foundation in fact. The blood appears to be carried off through the pores of the skin by transpiration. The medicinal leech is viviparous, and produces only one at a time, which is commonly in the month of July. Loudon, in treating of leeches, or rather the mode of rearing them as a branch of rural economy, has quoted some particulars on the subject, which we are persuaded have no foundation in fact; among others, that 'the food of the medicinal leech is derived from the suction of the spawn of fish;' this should have been established beyond a doubt before it was made public, as were this the case it might lead to an almost complete annihilation of the leech in the lakes of sport-loving gentlemen, and he adds, 'leeches will not unfrequently be found adhering to the fish themselves.' It should have been stated whether the fish were dead or alive, for if in the latter state we should be sceptical on the subject, unless we had something amounting almost to ocular demonstration of its truth. Again quoting from the same authority, he adds, 'but frogs furnish the most considerable proportion of their food. Hence the best leeches are found in waters much inhabited by these animals.' The only part of Mr Loudon's quotations on the habits of the leech consistent with fact: 'It is an inhabitant of a clear running water, but in winter the leech resorts to deep water; and in severe weather retires to a great depth in the ground, leaving a small aperture to its subterranean habitation. It begins to make its appearance in March and April.'

With respect to the management of leeches, we have directed considerable attention to the subject, having lived at a time when leeches were sold at from one shilling up to three shillings each, and we have even seen five shillings given for a good leech on pressing occasions. We have succeeded in keeping a few leeches alive and healthy for several years, and employed them on an average during that period (at least three and a half years) once every eight or ten days, and sometimes every second or third day, and never afforded them food of any description except a small bit peat moss, which we repeatedly washed in pure river water before we introduced it into the bottle occupied by the leeches. In summer the water was shifted once a week—always river water—and in winter once every two or three weeks. A green semi-opaque wide-mouthed bottle, such as are used for pickles, are the best kind of reservoir for small quantities. The leeches, when employed, were always emptied by stripping, first touching the mouth gently with clean white salt, for we have found salt exposed to smoke destroy the leeches. The operation of stripping is very simple: immediately the leech falls off, take it and touch the salt with its mouth or nose; then seize it by the tail with the fore-finger and thumb of the left, and with the same finger and thumb of the right hand strip the leech from stem to stern, as a sailor would say. If any hardness or fullness remains, pass the finger and thumb over it again till it feels smooth; then put it in a basin of pure water, and if it has been properly treated, it will swim and sport about immediately. Shift this water in an hour, and allow it another hour till it is returned to its ordinary domicile, or rather to a probationary bottle, where a single leech, or as many as have been sucking at the same time, are allowed to pass a week before they are introduced to the society of the others. The leeches should be inspected daily, and if any are dead or appear sickly, they should be removed, and the water on the stock immediately shifted. There are two or three seasons of the year when the leeches change their coat. On these occasions they are soft and flaccid, and want that rough firm feel of health they would otherwise have. When this is the case they should be put on a clean linen towel with a rather rough surface, and allowed to crawl about

for ten or fifteen minutes. Indeed, they are the better for this exercise every second or third week. A change from river to spring water, especially hard water, will often act as a poison. Leeches should never be exposed in a window, or any situation where they could feel the effects of a sudden night frost, although it is said they will recover after being frozen, but we had rather not risk the experiment.

As to the mode of application, that will be found in the article referred to in the commencement of this work, and those diseases, inflammations of every class, in which they are used, will be found more appropriately among the remedial means employed under the section on the treatment of these diseases. It is stated in Newton's Journal, as quoted by Mr Loudon, that there are four principal importers of leeches in London, whose average imports are said to be 150,000 per month, each making a total of 600,000, or seven million two hundred thousand in one year. On the continent, where they are procured at a much cheaper rate, the numbers employed are enormous. There are a great many obtained from lakes in the north of England and from Holland.

One of the reasons why leeches do not effect so much good as is expected from their application is, that they are not applied in sufficient quantity, and were leeches reduced to one penny each, or even half that price, more good would be effected, and the effect of many a sprain or bruise removed in eight or ten days that now takes twenty or thirty days to remove. Millions of them might be bred in Ireland, even in one barony, viz., that of Baylah, or the land of loughs, in the county of Donegal, and in a spot which does not now yield one shilling per acre. Were the measure introduced into Britain and Ireland, we would not henceforth be dependent on foreign supplies, and the expense in a time of war amounts almost to an interdiction of their use.

LEECH, The Horse. So many mistaken and unfounded reports have been published respecting this species of leech, that we have thought it right to notice it in this place. The *sanguisugu*, or horse leech, is thus described by writers on Natural History: Elongated, of an olive brown colour, and an ochre yellow marginal band. This species is larger than the former, its skin is smooth and glassy, its back of a dusty colour, and the belly of a yellowish green. It inhabits stagnant waters, and purchasers should be able to distinguish it from the true medicinal leech, as it will not answer as a substitute. In that excellent standard work, the Edinburgh Dispensatory, by the late lamented Dr Duncan, we find the following remarks. In reference to the true medicinal leech, Dr D. says, 'They should be collected in summer, in waters having a clear sandy bottom, as the bite of those found in stagnant waters and marshes is said to cause pain and inflammation.' We suppose those leeches which Mr Loudon says feed on frogs and fishes! But adds Dr Duncan, 'For the same reason the horse leech, which is entirely brown, or only marked with a marginal yellow line, is commonly rejected, although they are used frequently in the north of Europe, and during the late scarcity of leeches, have occasionally been employed in this country.' We have alluded to this subject from the fears that exist among people living in the country, and whose children are in the habit of wading in ditches where horse leeches are, and we are happy to make a quotation from the late lamented Dr Duncan, confirmatory of our own observations, and resting on a better foundation than the previous extract. 'The vulgar story,' says Dr D., 'of their drawing the whole blood out of the body by evacuating it at one end as fast as they sucked it in at the other, if true, would give them a superiority over the others, as when a sufficient quantity of blood was drawn there could be no difficulty of making them quit, even without passing a ligature round their necks.' We hope, therefore, that parents and others will cease to entertain unfounded fears on this subject. With respect to the real or apparent contradictions in Mr Loudon's invaluable Encyclopædia of Agriculture, a work unrivalled on the subject on which it treats, and from which, as well as the Encyclopædia of Gardening and Plants, by the same author, we derived much pleasure and information, we leave Mr L.'s authorities to answer, and hope the quotation will be expunged in next edition.

LEMON, or *Citrus Limonum*. This is a well known useful fruit, of which there are a great many varieties. The fruit, however, is so familiar to every school-boy that no particular description is necessary; it has an oblong shape, a thin yellow rind, and a very acid juice. The parts of this fruit employed in medicine and domestic economy are the rind, from which is obtained an essential oil, and is likewise used in tinctures and infusions; and the juice, which is considered the most valuable portion, and enters into a variety of drinks, forms both a sick and ordinary refreshing beverage. The essential oil is procured by rasping off the outer part of the rind, technically denominated the flavedo, which is received into hair bags which are committed to a press. The oil thus procured is received in proper vessels, where it remains till the sediment is deposited, and is then carefully decanted and filtered. The oil thus procured is very fragrant, but somewhat turbid, and liable to undergo change from the deposition of mucilage that may be present. It is obtained also by distillation, and the oil is then more permanent; but its flavour less plea-

sant, and therefore less valued than that procured by the other process. It is regarded as diaphoretic and stomachic, but used chiefly to disguise other medicines, and render them more agreeable. The essential oil of lemons used in Britain is procured from Italy, Portugal, and France; the two former countries affording the greatest supply. It might easily be procured from our own colony of New South Wales, where the lemon grows in great luxuriance and requires little trouble in the cultivation, and as the oil can be procured without losing the juice, the citric acid might likewise form another article of commerce, and be had at as low if not a lower price than its present substitute the acid of tartar.

The *Lemon Peel.* This part of the lemon is likewise employed in medicine, and forms a valuable addition to bitter tinctures and infusions. The inner or white spongy part of the peel should be rejected, or in taking it off, only the thin outer part of the peel should be taken, leaving the softer and useless part for a second peeling, and as a covering to the juice. In this way families might preserve for use the lemon peel, while the acid would be preserved. The outer peel may be hung up to dry in a warm dark situation, and when dried kept in a close tin or white iron box until required for use. The following infusion is ordered in the London pharmacopeia:—

Dried orange peel, half an ounce.
Dried lemon peel, two drams.
Bruised cloves, one dram.
Boiling water, one pint.
Macerate for half an hour and strain, (the college say fifteen minutes, which is too short).

This infusion is an excellent stomachic, stimulant, and carminative, and is useful in dyspepsia, flatulent colic, and gouty affections; and especially for those who suffer from indigestion in consequence of early intemperance. The dose is a small wine glassful three times a day, an hour before meals. Lemon peel likewise enters into the composition of the compound infusion of gentian, a favourite remedy of the late Mr Abernethy.

Gentian cut in small pieces.
Dried orange peel, each two drams.
Lemon peel, four drams.
Boiling water, one pint.
Macerate for one hour, and strain.

The college, without any good reason in this case, order fresh lemon peel, whereas the dried will answer equally as well. This too, is an elegant and useful bitter, and may be employed in the same cases as the former. If good brandy or whisky is added to the same ingredients in place of water, and be allowed to infuse for six or seven days, and then strain, the composition will form a convenient bitter for travellers. Two tea spoonfulls mixed with a wine glass of cold water or wine will be sufficient for a dose. If, however, the spirit is used the quantity of gentian may be doubled. Lemon peel was formerly distilled and yielded an agreeable aromatic water, but it has like many other articles gone out of fashion. The lemon juice derives its value and virtues from the citric acid it contains. It is, however, more agreeable and equally useful in most cases when employed in its fresh or recent state. Mixed with sugar and water, it forms the well known beverage lemonade, for the preparation of which the following are the directions of the French apothecaries and cooks; and we can assure our readers they will not feel disappointed in adopting it where lemons are cheap and plenty. Two ordinary sized lemons sliced, two ounces of refined sugar, and two imperial pints of boiling water, digest until cold. The following may be substituted where lemons are scarce and expensive. One ordinary sized fresh lemon, two ounces of refined sugar, in three or four lumps; rub or rasp the outer rind or flavedo of the lemon with each piece of the sugar above a jug or bowl, then cut the lemon in small pieces, and put it in the jug or bowl with the sugar, and one tea spoonful (not heaped) of cream of tartar, and two pints of boiling water. Either of these processes will produce a quart or even three pints if the lemonade is good, of a most refreshing and agreeable drink in fevers, hæmorrhages, and other diseases, or as a common summer drink to the healthy and athletic. A table spoonful or four fluid drams of lemon juice are about equal to seventeen grains of citric or tartaric acid, and will therefore answer every purpose for which these acids are used in forming effervescing draughts with the bicarbonates of potash and soda.

Lemon juice has long been regarded as a valuable antiscorbutic, but we regret to state that too little care has hitherto been bestowed on its quality and preservation. We once had occasion to employ it to a very considerable extent on board a convict ship, of which we held the office of surgeon-superintendent, scurvy having been produced by the very long and confined situation of the convicts, some of them having been not less than eleven months on board the ship in which they were transported, and the vessel which conveyed them from Dublin to Cove of Cork, and both the lemon juice and raisins, the latter of which we would have fermented and used as a substitute for the former, were of a very bad quality. The crystallized acid is now substituted, but unless where a criminal carelessness obtains in those who have the charge of seamen, scurvy will never appear unless under extraordinary circumstances, (see *Scurvy*), and it is only in such extraordinary cases such as that we have stated, that even transported felons can be affected with the disease. Lemon juice has likewise been employed as an antidote to poisons. When poisoning by alkalies occurs, vegetable acids, generally lemon

juice and vinegar, are the most appropriate remedies, as they neutralize the alkalies, and deprive them of their caustic and poisonous properties. Where narcotic substances, such as opium and its preparations, have been taken to the extent of poisoning, and have been evacuated from the stomach, or drawn off by the stomach pump, lemon juice, properly diluted, may be given to counteract the effects. See *Citric Acid*, where will be found other particulars relative to the use of citric acid.

LENS. The name applied to the crystalline humour of the eye. See *Eye*, anatomy and diseases of.

LEOPARD'S BANE, or GERMAN LEOPARD'S BANE, or *Arnica Montana*. This perennial plant, the flowers, herb, and root being all used in medicine, is a native of the north of Europe, and there is no doubt, could be easily raised in more than sufficient quantity for medical use in these kingdoms. The plant, especially the flowers, have a slightly fœtid odour, and when rubbed aromatic, readily exciting sneezing, and a bitterish acrid taste. The root has the same sensible properties, and when dried is about the thickness of a small quill, sending out fibres on one side, externally rough and of a red brown colour, and internally of a dirty white. Both the flowers and root possess diaphoretic, emenagogue, narcotic, and stimulant qualities; the root, however, is more apt to excite vomiting. The flowers are most frequently prescribed in the form of infusion, and the root in powder, although both are preferred in the infused form by some practitioners. A dram and a half of the flowers or root is infused in half a pint of boiling water for two hours, and about two table spoonfuls of the root is used, and three of the flowers,—three times a day. The flowers when infused should be tied up in a bit of linen or cotton rag, as otherwise their down is apt to be diffused in the liquid, and to cause violent irritation of the throat. The powder of the root is given in doses of from five to ten grains three times a day. Leopard's bane is indeed a most valuable remedy in a variety of diseases, when judiciously prescribed in small divided doses. It should, however, not be concealed that in large doses the medicine excites an unsupportable degree of anxiety, shooting and burning pains, and even dangerous hæmorrhages, vomiting, vertigo and drowsiness. The best remedy for these effects, when produced either from ignorance or mistake, is drinking freely of acids, and the other means recommended in abating the effects of narcotic vegetables. In small doses, however, and properly administered in either the infusion or powdered root, this medicine often produces the most beneficial effects, raising the pulse, exciting the action of the circulatory system, checking diarrhœa, promoting expectoration, and most particularly in removing paralytic affections of the voluntary muscles. In other cases, however, the use of this medicine is attended with no perceptible effects except in some cases of paralysis, where the cure is preceded by a peculiar prickling, and shooting pains in the affected parts. The flowers and root have been recommended in paralytic disorders, chronic rheumatism, retention of urine from paralysis of the bladder, in amaurosis, intermittents combined with bark, dysentery, and diarrhœa, in very small doses; putrid diseases, typhoid inflammations, in promoting uterine discharges. When this medicine comes to be raised in Britain and Ireland, and when medical practitioners become more thoroughly acquainted with botany, this medicine will be more extensively employed, as the flowers have been often mixed with other flowers, from fraud or actual ignorance, or carelessness, and can only be distinguished by a botanist. 'The flowers,' says Dr Duncan, 'which are of a yellow colour and compound, consisting entirely of tubular florets, are distinguished from similar flowers with which they are often mixed from ignorance or fraud by the common calyx, which is shorter than the florets, and consists entirely of lancet-shaped scales, lying parallel and close to each other, of a green colour and purple points.' See *Palsy*, *Rheumatism, Chronic*, &c.

LEPROSY. This term is commonly used to denote any extensive scaly eruption. Although the leprosy, so frequently mentioned and so minutely described in Scripture, is, we believe, quite unknown in this country. The term, however, is generally applied by medical writers to a scaly eruption appearing in patches of different sizes, and generally commencing with small shining red elevated patches of the skin, which gradually extend to about the size of a half crown piece, and then become scaly, and encircled with a dry, red, and somewhat elevated border. If the disease is extensive, there is generally pain and stiffness of the joints, and considerable constitutional derangement.

The *treatment* consists of local applications, such as sulphuretted baths, friction with a liniment composed of citrine and pitch ointment, employing at the same time the frequent use of the common warm bath, and friction with the hand or washes of diluted muriatic or nitro-muriatic acid. Whenever ointments are used, care should be taken to wash them off the next morning with soap and warm water, at the same time attention must be paid to the general health; alterative and diaphoretic, and tonic medicines should be given internally, the bowels kept gently open, and the diet regulated. Sulphuretted and chalybeate waters may be drunk early in the morning, and gentle exercise had recourse to, and when once the constitutional symptoms

are removed, the local disease will generally soon yield.

LETTUCE. This well known plant, whose leaves are in common use as a salad, contains a narcotic principle which possesses properties similar to those of opium. This discovery has lately been brought into notice, as its extract is a useful addition to the materia medica. This extract is termed lactucarium, and is given in doses of from three to five grains, and the tincture prepared from it is given in doses of from fifty to eighty drops; it produces all the anodyne and soporific effects of opium, without producing the headache, nausea, and constipation, which so frequently succeed the use of opium.

LIGAMENTS. Strong fibrous substances, so termed from binding together the different bones composing the skeleton. Ligaments differ in form and size, but for general purposes they may be divided into two great classes. The rounded or cord-like ligaments, such as the lateral and crucial ligaments of the knee joint; and the capsular, or sack-like ligaments, such as those of the shoulder and hip joint, which consist of a broad layer of fibrous tissue, surrounding the articulation, and allowing of free rotatory motion between the bones which they connect. For an account of the diseases and accidents to which they are liable, see *White Swelling*, and *Dislocation*.

LIGHTNING. When persons happen to be overtaken with a thunder storm, although they may not be terrified by the lightning, yet they naturally wish for shelter from the rain which usually attends it; and therefore, if no house be at hand, generally take refuge under the nearest tree they can find. But in doing this they unknowingly expose themselves to a double danger: 1. Because their clothes being thus kept dry their bodies are rendered more liable to injury, the lightning often passing harmlessly over a body whose surface is wet. 2. Because a tree or any elevated object, instead of warding, often serves to attract and conduct the lightning, which in its passage to the ground frequently rends the trunks or branches, and kills any person or animal who happens to be close to it at the time. Instead of seeking protection then by retiring under the shelter of a tree, hay ricks, pillar, wall, or hedge, the person should either pursue his way to the nearest house, or get to a part of the road or field which has an object which can draw the lightning towards it, and remain there until the storm is subsided.

It is particularly dangerous to stand near leaden spouts, iron gates, or pallisades, at such times; metals of all kinds have so strong a conducting power for lightning as frequently to lead it out of the course which it would otherwise have taken. When in the house avoid sitting or standing near the window, door, or walls during a thunder gust; the nearer you are placed to the middle of a room the better. The greatest danger to be apprehended from lightning is explosion of powder magazines, which might in a great degree be secured from danger by insulation, or by lining the bulk heads and flooring with materials of a non-conducting nature, the expense of which would not be great. When a person is struck by lightning, strip the body and throw buckets of cold water over it for ten or fifteen minutes; let continued frictions and inflations of the lungs be also practised; let gentle shocks of electricity be made pass through the chest, when a skillful person can be procured to administer them, and apply blisters to the breast; the *aceto-spirituous* blister will answer best. Dr Curry very earnestly advises the use of electricity in these cases of apparent death. 'This recommendation,' says he, 'does not depend upon mere theory, but is drawn from instances of its success in real cases, as well as in experiments made upon fowls and other small animals, which after being completely deprived of sense and motion by a strong electrical shock passed through the head or chest, were perfectly recovered by transmitting slighter shocks through the same parts. And in this way animation has been suspended and restored alternately for a considerable number of times. Besides, persons seemingly killed by lightning have frequently been restored by the ordinary means used in other cases of apparent death, from the superior stimulant power of electricity. There is every reason to think that it would have been successful in many cases where these alone have failed.

LIME, or *Citrus Limetta*. The fruit of this species, of which there are several varieties, the most common and valuable of which is the bergamium, from the rind of whose fruit is obtained the very favourite perfume known by the name of the oil or essence of bergamot. This oil has a pale yellow colour, and is similar in its composition to the essential oil of lemons. It is used in medicine merely on account of its odour. Lime juice is a great favourite with punch drinkers, and confers a very pleasant zest to that fascinating compound. It is considered superior to lemon juice for this and some other purposes in cookery and domestic economy.

LIME, OR QUICK LIME. The substance which finds a place in the materia medica of the colleges is technically denominated calx or calx viva, and is procured from a genus of minerals which Jamieson and other mineralogists have divided into four species: rhombspar, dolomite, limestone, and arragonite. It is, however, from the third species, limestone, that by far the greater proportion of quick-lime used either in medicine or the arts is obtained. Quick lime, according to Davy, is composed of a metal denominated calcium and oxygen, or in other

words, the oxide of calcium, one of the primitive rocks. Quick lime is produced from limestone by the well known process improperly termed burning lime. The fire expels the water, animal matters, if any are present, as they are in cases of shells and the carbonic acid. The lime then, either by the action of air or water, half the weight of the latter, being poured upon burnt lime, produces a great increase of heat or temperature, steam is produced, and the lime falls down into a dry powder, very slightly increased in weight by the water, which it has solidified. In this state it presents the appearance of a white powder, having a serinous burning taste, and possessed of strong escharotic properties, as well as that of quickly decomposing dead animal matter. It was formerly applied in this state to fungus, and ill conditioned sores; but is now seldom or never employed in this state for any medical purpose. The colleges, however, order a water or liquor to be prepared from it, well known by the name of lime water, and it is likewise formed into a caustic in combination with potash. Lime is likewise prepared from the shells of oysters and other shell-fish, having the same properties as lime from marble or limestone. Lime should be kept for medical purposes in well stopped bottles, and if pure, should not effervesce with acids, and should be entirely soluble in water.

LIME WATER. The following are the directions of the London college, which Dr Duncan considered preferable to the mode employed by either the Dublin or Edinburgh colleges for the preparation of lime water.

Lime, (recently burned or well preserved) half a pound.
Boiling distilled water, (or pure cold rain or river water) twelve pints.

Pour the water on the lime and stir them together, immediately cover the vessel, and set it aside for three hours, then preserve the liquor upon the remaining lime in well corked bottles, and decant off the limpid solution when wanted for use. The words within parentheses are our own, as distilled water cannot always be had, and hot or boiling water is unnecessary, as lime is actually more soluble in cold water than hot. Dr Duncan judiciously remarks on the above process, that the lime water is not filtered but decanted off, and if carefully performed it will be perfectly pure. The excess of lime is certainly an advantage, as we are sure of its being always saturated; for fresh lime will be always dissolved to supply the place of that rendered insoluble, and precipitated by absorption of carbonic acid. There are about sixteen grains of lime held in solution by a pint of the water, or about one grain in each fluid ounce. When properly prepared, it should be transparent and colourless, inodorous, and have a sweetish acrid austere taste. It changes vegetable colours green. Those who prefer filtering to decanting, should do so in a covered funnel, but the solution may be prepared so cheap, that it is scarce worth while, as leaving a portion of lime in the bottom has its advantages.

Lime water, or solution of lime, as it is called by the London college, is antacid, anthelmentic, tonic, and astringent. It is employed as an enema to dislodge small worms that nestle in the rectum, and combined with calomel or with corrosive sublimate, as a wash or injection. It is likewise used in the composition of the Carron oil, or lime water liniment, being equal parts of this preparation, and fresh drawn lintseed oil. As a lotion to foul and cancerous ulcers, and internally in diarrhæa, diabetes, fluor albus, and dyspepsia or indigestion, when much acid abounds in the stomach. The dose, in sweet milk, which covers its taste, is from one wine glassful up to half a pint, gradually increased. It should never be continued, especially in weak states of the stomach, without intermitting its use for some days, using the infusion of gentian in the interval. It is better, however, to take it in divided doses of two or three wine glassful daily, than half a pint at one dose, as ordered by some.

Compound Lime Water.

Guiacum wood in shavings or raspings, half a pound.
Liquorice root, bruised and sliced, one ounce.
Sassafras bark, bruised, half an ounce.
Coriander seeds, bruised, three drams.
Lime water, six pints.
Macerate without heat for two days, and filter.

This composition is ordered by the Dublin college, and although a very mechanical preparation, it has been lauded by some high authorities as a most valuable alterative, and preferable to the compound decoction of guiacum in cutaneous affections, rheumatism, scrofula, and after a mercurial course. It is taken in doses of a gill three or four times a day. We have had no experience of its efficacy, as we have seldom found the decoction of guiacum to deceive us when properly prepared of genuine materials. Its mechanical nature, however, is no good reason for its rejection, as Griffith's mixture and other useful medicines are equally objectionable on the same ground, and yet experience has confirmed their utility. For the other preparations of lime, see *Chalk*, *Muriate of Lime*, *Chloride of Lime*, *Oyster Shells*, *&c.*

LINIMENTS are a form of medicines for external use, generally of the consistence of common oil, or varying in consistence from that to the consistence of a syrup or thin honey. The colleges have been in the habit of classing them with cerates and ointments. Liniments, however, are always understood to have a fluid consistence, and are in general prepared of balsams, oils, or soaps. Some liniments, however, might with more propriety be denominated ointments, such as the simple liniment of the Edin-

burgh pharmacopeia, which is composed of wax and oil melted together, and some ointments might be called liniments although not liquid, such as the emetic tartar ointment formed of lard and the emetic tartar, seeing it is generally applied by friction as a liniment, and not as an ointment. These observations will then suffice to furnish the unprofessional student of pharmacy of what is intended by the composition denominated a liniment. The principal liniments ordered by the pharmacopeias, are the stronger and weaker liniments of ammonia or hartshorn. Anodyne or liniment of soap with opium, and the simple and compound liniments of camphor, the compound soap liniment, and the liniments of lime water, of turpentine, of mercury, and of verdigris, the formula for the preparation of each, with its uses, will be found under their respective heads; for example, if mercurial liniment is prescribed, look under mercury for the formula, and if soap under that word, or under the head *Liniments*, in the *Domestic Pharmacopeia*.

LINTSEED. The seeds of the common flax. These seeds, when infused in boiling water, and allowed to stand for an hour or two, and strained, yield a mucilaginous infusion, which forms an excellent demulcent drink in cases of cough, irritable bladder, gonorrhæa, and it also forms an excellent vehicle for other medicines of an irritating nature, as croton oil, &c.; and is greatly preferable to oat gruel in the composition of enemata. The meal prepared by grinding the seeds is used for the purpose of making emollient poultices.

LIQUORICE, or *Glycyrrhiza Glabra*. War with all its devastating horrors led to the cultivation of liquorice (which is a native of the south of Europe) in Great Britain, and the roots now raised in England are esteemed in preference to those imported, especially for medical purposes. As we have always regarded horticulture or gardening as one of the handmaids of health, such of our readers as have gardens will not be offended with us if we devote a short column to the mode of cultivating liquorice. Except a few favoured spots, the climate of Scotland is rather cold, but an amateur gardener will not lose much in any place by giving the root a trial even in Scotland, for it thrives well in most parts of the other two kingdoms. The soil for liquorice should be a deep sandy loam, trenched by the spade to two and a half or three feet in depth, and manured if necessary. The plants are procured from old plantations, and consist of the side roots which have eyes or buds. In autumn when a crop of liquorice is taken up for use, these may be taken off and laid in earth till spring, or they may be taken from a growing plantation as wanted for planting. The planting season may be either October, or February, or March. In general, the latter months are preferred. The plants are dibbled in rows three feet a part, and from eighteen inches to two feet in the row, according to the richness of the soil. The after culture consists in hoeing and deep stirring, and weeding, and in cutting over and carrying away the haulm every autumn after it is completely weathered. As the plants do not rise above a foot the first season, a crop of onions or beans is sometimes taken in the intervals. The plants must have three summers' growth, at the end of which the roots may be taken up by trenching over the ground. In times of war the cultivation paid better than in the days of peace, but the roots raised at home are not so spoiled and mouldy as the foreign, and of course, as already stated, preferred for the purposes of medicine.

Liquorice root, which is the part used, has a sweet mucilaginous taste, is inodorous, and of various thickness, and flexibility from the circumference of a walking stick down to a twig. It has a brown cuticle, and indeed is well known as it is a great favourite among school boys. It possesses demulcent qualities, and although it enters into the composition of several compounds in the pharmacopeia, it only gives name to two forms of lozenges in the Edinburgh and one in the London; viz., the extract of liquorice, which is prepared by evaporating the decoction. The root, however, enters into the composition of the compound decoction of salsaparilla, the infusion of linseed, and the confection of senna. The powder of the dried root is likewise used for preventing new made pills from sticking together, and for giving form and consistence to various active ingredients. Liquorice is indeed a useful demulcent, and the foreign extract, which is sold under the different names of Spanish and Italian juice, liquorice ball, and in Scotland black sugar, is well known as a popular demulcent in coughs. This extract, which is sold in rolls, is of very different grades of quality, some of it being spoiled by burning in the preparation, and others by fraudulently increasing the weight by mixing it with sand and other impurities. The best is prepared in Catalonia, and is known by its clear shining fracture, and freedom from any singed or empyreumatic taste or flavour. What is said to be refined liquorice is indeed often the most impure; it is rolled up in small stalks or pipes, and varnished over by a solution of isinglass. The extract, when properly prepared, possesses all the virtues of the root. There is a pretty pure description formed into lozenges, and sold under the name of Pontefract cakes.

The simple Lozenges or Troches of Liquorice.

Extract of liquorice.
Gum Arabic, each one part.
Refined sugar, two parts.
Boiling water, a sufficient quantity.

Dissolve and strain, then evaporate the solu-

tion over a gentle fire till it be of a proper consistence to be formed into lozenges.

Liquorice Lozenges with Opium.

Opium, two drams.
Tincture of tolu, half an ounce.
Common syrup, eight ounces.
Extract of liquorice, softened with warm water.
Gum Arabic in powder, of each five ounces.

Triturate the opium well with the tincture, then add by degrees the syrup, and extract afterwards, gradually mix in the powdered gum Arabic. Lastly, dry them so as to form a mass to be divided into lozenges, each weighing ten grains. The first of these forms is an excellent simple demulcent, and may be used at pleasure, being allowed to dissolve slowly in the mouth, and in this way moistens the first passages, and relieves the tickling cough. This end would, however, be as effectually attained by forming the mass into small balls as by the lozenge form, and when use, not sale, is the object, may be adopted by the domestic apothecary. The other formula is one of more importance from the circumstance of opium entering into its composition, a circumstance which should be remembered in its use, as seven and a half lozenges contain about one grain of opium. More care and attention therefore is necessary, not only in the preparation, but in the using; and therefore these lozenges should never be entrusted into the hands of children, seeing one lozenge contains nearly the seventh of a grain. They are, however, a very useful remedy for an obstinate tickling cough, in all cases where opiates are required. Four or five, or even seven or eight, may be gradually dissolved in the mouth, half an hour or an hour before bedtime, and two lozenges may be kept constantly in the mouth during the day, which will unquestionably afford great relief; but as we already stated, only in such cases as opiates are required. The lozenges are seldom prepared by the apothecary, or even by the wholesale chemist or druggist, but by a professional confectioner or lozenge maker; and are therefore more neat, and perhaps more uniform, if dependence could be placed on the quality and true proportions of the active ingredients, such as opium, ipecacuanha, squills, and other medicines used in the form of traches or lozenges. Liquorice is too bulky for giving in substance, and is therefore always used in the forms above stated, or in those of infusion or decoction. It is extensively employed by porter brewers and others, and it were well if they never employed a more pernicious article.

LITHONTRIPTIC. This word is used to denote medicines which were formerly supposed to possess the property of dissolving stone in the bladder. Those chiefly used were preparations of alkalies, such as solution of carbonate of soda, potash, and lime water. These medicines, by coating over the stone with a layer of a smoother character, but principally by correcting the acid state of the urine, were sometimes of service in procuring an alleviation of pain, and even entire remission of it for some time; but experience and examinations after death, in cases supposed to be cured, have fully shown that, if once the stone be formed, no chemical substance with which we are at present acquainted can effect its solution by being taken internally, although these medicines are useful in counteracting the formation of stone, by correcting the acid state of the urine in such cases. See *Stone*.

LITHOTOMY. The surgical operation for removing the stone from the bladder by incision. See *Stone*.

LITHOTRITY. A surgical operation lately introduced. It consists in the introduction of an instrument into the bladder in the same manner as the catheter is introduced, and when the stone is felt by its point, it is opened, the stone seized between its blades, and then broken up into fragments sufficiently small to be voided with the urine. This is effected by approximating the blades of the instrument by means of a powerful screw or a hammer. This operation is only applicable where the bladder is not irritable, where the canal of the urethra is of good size, and the stone small. Hence, persons who have symptoms of stone, should apply early for medical advice, as they may thereby perhaps be saved the necessity of submitting to the operation of lithotomy. Lithotrity is of course inapplicable to children, but this is but little to be regretted, as there is perhaps no surgical operation more generally successful than that of lithotomy in children. See *Stone*.

LIVER. This secreting gland, the largest in the body, is situated at the upper part of the abdomen, in the right hypochondriac region and epigastric region, and a small portion of its left lobe extends even towards the left hypochondrium. It is convex on its upper surface, which is in contact with the diaphragm, and concave and lobulated on the lower surface. It is divided, first, into two great lateral lobes, right and left, by what is termed the horizontal fissure. The lower surface of the right lobe is subdivided by several depressions into three smaller lobes; and in one of these depressions the gall bladder is placed. The liver, like all the conglomerate glands, is composed of a collection of small granules or lobules, as they are termed, each being a secreting apparatus, furnishing the peculiar secretion of the gland termed bile. The liver is supplied by a large artery, the hepatic, and a large vein, the vena porta, which is formed by the junction of the mesenteric veins, and which, after entering the liver, divides into smaller branches, and circulates its blood like an artery. It is from this venous blood that the bile is principally, if not altogether secreted, as is proved by experiments

instituted to ascertain the fact. The blood, after having been so circulated by the minute branches of the vena porta, and furnishing the secretion of bile, is returned by a set of veins termed the hepatic; these join, forming three or four large trunks, which empty themselves into the ascending vena cava; the biliary ducts commence by small twigs in each lobule, and join, forming, where they emerge from the gland, the hepatic duct. This duct, after passing down for a short distance, is joined at an angle by the cystic duct from the gall bladder. The common duct, so formed, is then named the ductus communis coledochus, and empties itself into the duodenum. The use of the gall bladder seems merely that of a reservoir for the superabundant bile; that secretion passing into the gall bladder by the cystic from the hepatic duct, and remaining in the gall bladder till required for the purposes of digestion. For diseases of the liver and its secretion, see *Bile, Bilious Complaints, Gall Stone, Hepatitis.*

LIVER, Inflammation of. See *Hepatitis.*

LIVERWORT. There were formerly two plants admitted into the pharmacopeias bearing this name, viz., the *hepatica terrestris* or ground liverwort, or the *marachantea polypodium*, or *M. hemispherica.* It was likewise known by the name of the stone lichen, or water hepatica. The other variety was the ash-coloured ground liverwort, or the *lichen cineris terrestris*, now the *lichen cineris* of Linnæus. Both these plants, however, although very extensively employed in several districts of the three kingdoms, have long been expelled the materia medica of the colleges, and there is now only one of the liverworts retained, or more properly introduced, since their expulsion, viz., the lichen Islandicus, or Iceland moss, a description of which will be found under its proper head. The first of these plants, the ground liverwort, is very common in many parts of the united kingdoms, but abounds most in moist shady places, and on the banks of rivers, and consists of spreading leaves of a leathery crustaceous matter, cut not very deep into lobes, entire about the edges. It has a penetrating though mild pungency, and bitter taste, sinking, as it were, into the tongue. It is to be met with at all seasons of the year, but is in its greatest vigour about the end of harvest. It is recommended as an aperient, resolvent, and antiscorbutic, and though seldom used by the faculty in this country, is, if we may judge from the opinion of high authorities in other countries, and from facts occurring in domestic practice, a plant of no inconsiderable value. Dr Short has lately invited the attention of the profession to an investigation of its virtues in several forms of dropsy, when externally applied; and an account of the mode of application in these affections will be found under the article *Anasarca*, to which we refer. We have seen it frequently used in Ireland as an application in affections of the liver; but we do not consider it worthy the confidence that has been placed upon it in these diseases.

The ash-coloured ground liverwort is somewhat similar in appearance to the preceding, and has a weak faint smell, and a disagreeable, nauseous, and sharpish taste. It was for a long time highly extolled as a medicine of singular virtue in preventing and curing hydrophobia. Dr Mead, by whom it was introduced into practice, says, 'That it grows in all countries, and that it has been brought over from America along with the Peruvian bark; that it is to be found at all times, but ought to be gathered from autumn to winter, as being at that time in its freshest vigour.' It possesses warm diuretic properties in the form of a decoction of the fresh leaves, one ounce cut small, and boiled in three pints of water down to a quart, and then strained while hot, pressing the leaves. A wine glassful of this decoction and two tea spoonfuls of gin are to be taken thrice a day in dropsical affections, but we have now much better medicines. It was, however, chiefly as a remedy for hydrophobia that it was so celebrated, and the pulvis antilypus, or powder for the bite of a mad dog, found a place in the pharmacopeias, and is still used in some parts to this day. The following is the prescription in the Edinburgh pharmacopeia of 1745:

> Ash coloured ground liverwort, one ounce.
> Black pepper, half an ounce.
> Mix, and beat them into a powder.

The following are the directions for its use: 'Let the patient be blooded nine or ten ounces, and afterwards take a dram and a half of the above powder every morning, fasting for four mornings successively, in half a pint of cow's milk warm. After these four doses are taken, the patient must go into the cold bath or a cold spring or river every morning, fasting for a month. He must be dipt all over, but not stay in with his head above water longer than half a minute, if the water be very cold. After this he must go in three times a week for a fortnight longer.' This was said in many cases to be successful, but we have no proof of its ever curing the disease. Let none confide in it. It affords, however, evidence that plants of this class deserve greater attention than they now meet with.

LOBELIA INFLATA, or INDIAN TOBACCO. This herb and its preparations were introduced to the notice of the faculty and the public some years ago, as a valuable remedy in asthma. Its constituents are caoutchouc, an acrid principle, and extractive, and it has a pungent, nauseous, and acrid taste. Its effects are emetic, in small doses expectorant, and in larger doses narcotic, while in over doses it is poisonous. It often affords considerable

relief in asthma, croup, and hooping cough, and from five grains to twenty of the powder have proved emetic. It is chiefly employed in the form of tincture, which is prepared by macerating two ounces of the herb in a pint of proof spirit for ten days, and then filtering. An etherical tincture is made in the same way, only by substituting the spirit of sulphuric ether for common spirit, and this latter form, though more expensive, is more effective. These tinctures are taken in asthma, in doses of from half a dram to a dram, and as an emetic, in doses of two drams to an adult; but as an emetic the powdered leaves are preferable to the tincture, and the etherical tincture should not be used as an emetic. It will be found prescribed in those cases in which it has been found useful under their respective heads; and it is a valuable addition to our materia medica.

LOCATELLUS BALSAM, or LOCATELLIS BALSAM. This is a preparation that receives its name from its inventor, Locatellus, and was formerly administered in coughs of long standing, and as an application to ulcers and old sores, and as it was so famous not only in those cases, but in many others, and is still used in many parts of the kingdom, and sold by the druggists, we think it right to give it a place. 'Melt a pound of yellow wax over a gentle fire, in a pint and half of best olive oil. Then add a pound and half of Venice turpentine, and having taken them from the fire, mix in two ounces of balsam of Peru, and one ounce of dragon's blood, in fine powder, keeping the whole stirring till the balsam has grown cold.' This is taken from the Edinburgh pharmacopeia of 1721, and fourth edition of the translation by Dr Lewis. The substance we have seen sold in some parts of England for this once famed balsam, appeared to be a mixture of turpentine and rosin of the colour and consistence of honey. Those, therefore, who have any faith in its utility, and from its composition, there is no doubt it is possessed of useful qualities, will now have an opportunity of preparing it by an accredited recipe. We think, however, that the preparation would be materially improved by not adding the olive oil until the wax was dissolved, and its impurities removed by straining it while hot; cleaning out the pot, and returning the melted wax with the oil and Venice turpentine; or perhaps it would be preferable to melt the wax, then add the oil and turpentine, and continue them on the fire till they were a uniform fluid. Then strain them while hot, and add the balsam of tolu and dragon's blood, as directed. Our respect for our old friends, and many of our old formulæ, has induced us to throw out these hints, as the balsam is sometimes used internally, and we have no doubt, if formed into an emulsion, would form an excellent remedy in gonorrhea, and in all cases of diseased discharge from mucous surfaces.

LOCHIA. The cleansings, or that discharge which takes place from the womb after delivery. This discharge is at first bloody, but gradually becomes colourless, and has a peculiar odour. In general the red discharge seldom continues after the third day; the colourless discharge, however, continuing for some time, varying in different individuals. For an account of the treatment to be pursued, in cases where this discharge either becomes excessive, or is entirely suppressed, see the article *Lying-in Women, Management of.*

LOCKED JAW. A spasmodic affection of the muscles of the lower jaw, which prevents its being moved, so as to allow the mouth to be opened. It forms one of the most dangerous symptoms of tetanus. See *Tetanus.*

LOGWOOD, or *Hæmatoxyli lignum.* This well known dyewood is a most useful tonic astringent medicine, and may be employed in the second stage of diarrhœas and dysentery in the simple form of decoction, one ounce or an ounce and half of the shavings boiled in two pints of water to one half, and fifteen minutes before it is removed from the fire half an ounce of bruised cinnamon bark may be added. The decoction is to be strained while hot, and in the hot strained decoction dissolve one ounce of refined sugar, and decant off the clear decoction when cold from any refuse that may be at the bottom. A small wine glassful of this decoction may be given three times a-day, or half that quantity after every loose stool, either in diarrhœa or dysentery. The decoction will keep better and be more efficacious if one ounce or two of the tincture of catechu be added. The London college order an extract to be prepared by evaporating the decoction of the chips or raspings which soon hardens and becomes brittle, and is used for the same purposes as the simple decoction of the logwood above described. It is taken in doses of from ten grains to a dram three times a day, dissolved in cinnamon water or in the form of pills or powder. A powder is composed of,

One dram of the extract.
Two drams prepared chalk.
Half a dram of powdered cinnamon.
Intimately mixed together and divided into six doses.

One three times a-day in half a wine glass of sweetened ginger tea, and to the bed-time or night dose half a grain of powdered opium may be added. This is often very useful in protracted diarrhœas and dysentery, and may be given to very young children without the opium, in doses of from five grains to ten or even a scruple, according to the age. If mixed with sugar and water it is far from being disagreeable to children.

Logwood, although a cheap article, is frequently, when ground, mixed with other still cheaper woods or roots, but it may be procured in chips and known by its firm and heavy texture,

dark red colour, sweetish slight astringent taste, and if a solution of copperas is dropped into the decoction, it will strike a brighter blue than almost any other astringent.

LOOSENESS. See *Diarrhœa.*

LOOSESTRIFE, or *Lithrum Salicaria*, or PURPLE-SPIKED WILLOWSTRIFE. The adoption of this plant into the Dublin Pharmacopeia is owing to its celebrity as a popular or domestic medicine in Ireland, where its beneficial effects in diarrhœa and dysentery, two diseases very common in many districts of that country, has been long known. It augurs well of the liberality and good sense of the Dublin college that they are not above taking an occasional practical lesson from a fireside practitioner, who culls many of his remedies from the fields and hedgerows of his native isle.

Loosestrife is a perennial indigenous plant, and delights in moist places and banks of brooks and rivers. The dried leaves are inodorous, and have an astringent herbaceous taste, and as may be supposed from what we have already stated of the uses to which it is applied, its virtues are tonic and astringent. Both the herb and root are used, most frequently the former. One ounce of the dried herb, boiled in one pint of water down to one half, and strained while hot, may be given in doses of a large wine glassful three or four times a-day. In this form it was and still is popular in Sweden as well as in Ireland, and has been recommended by no less authorities than Storke and De Haen. They recommend it especially in weakness of the bowels, where there is a partial degree of laxness, but where the bowels are likewise partially obstructed by hardened fæces. After the bowels have been well opened by a purgative, small doses of the decoction, say half a gill three times a day, give tone and vigour to the alimentary canal, and prevent a return of the disease. The powdered leaves are not easily taken in a watery menstruum, as they soon give out a ropy mucilage, which is difficult to swallow. There is indeed no doubt that it possesses strong mucilaginous and astringent powers. We would therefore recommend to our country readers, but especially to our Irish friends, to collect and dry this useful plant in season, and dry and preserve it according to the rules we have given in such cases.

Premising a dose of rhubarb, consisting of two scruples of the powder, and a few grains of powdered ginger, they may begin using the decoction as above directed three times a day; using as food two parts of potatoe starch and one of fine flour dried and intimately mixed, and then made into a jelly as directed under the article *Potatoe Starch*, sweetened with a little sugar and the addition of a little grated nutmeg or cinnamon. Bread may be made of the same materials, avoiding potatoes and poteen in any form. In these simple means will be found a remedy for the diarrhœa and dysentery so very common in Ireland in March, April, and beginning of May, and which frequently terminates in typhus fever.

LOTIONS, or WASHES, are solutions of medicinal substances, to be applied externally to ulcers, sores, swellings, &c. For example, sugar of lead water is a lotion applied to inflamed and swollen parts, for the purpose of astringing the vessels of the part, and so producing resolution: of course, lotions must vary in their composition according to the nature of the disease in which they are intended to be applied, some diseases requiring lotions of a stimulating and others those of a cooling and anodyne nature; the various kinds suited to the several cases for which they are intended will be directed when treating of diseases in which they are required.

LOTUS, or the RHAMNUS LOTUS. This tree, described by Park, Rennel, and others, is disseminated over the edge of the Great Desert, from the coast of Cyrene round by Tripoli to the borders of the Atlantic, the Senegal, and the Niger. It bears farinaceous berries or fruit of a delicious taste and yellow colour, called by the natives Tomberongs, who convert them into bread, and the meal or starch is prepared in various forms as food, and it also yields sweet agreeable liquor. It is concluded on good authority that it is the Lotus mentioned by Pliny as the food of the Libyan Lotofagi. Travellers should recollect such valuable hints, and before setting out acquire all that is already known of the natural history and botany of the countries they intend to visit.

LOZENGES are used in medicine as a convenient form in which to exhibit certain medicines in cases of coughs, as they are thus allowed gradually to dissolve in the mouth; and from the glutinous nature of their composition, as well as from the effects of the medicinal substances contained in them, they serve to allay irritation at the upper part of the pharynx windpipe. See *Liquorice.*

LUMBAGO. A painful rheumatic affection of the loins or lumbar region of the body, whence it has derived its name. Sometimes it is ushered in with general fever and the patient feels as if he had strained or racked the lower part of the back; the pain is excessively severe in most cases, whilst in others it is of a dull gnawing kind. This disease generally arises from exposure to wet, cold feet, or sudden exposure to cold, as when a person divests himself of a part of his dress when over-heated. Some persons are subject to repeated attacks of this painful complaint. Lumbago, from the situation of the pain and other symptoms, may at first be confounded with inflammation of the kidney or lumbar abscess, particularly with the latter, the first symptoms of which it closely resembles.

Treatment. If the disease is acute and ushered in with symptoms of general fever, and if the patient be of a healthy constitution, blood may be drawn from the arm and also abstracted locally or from the pained part by means of cupping or leeching. The former is much preferable, as the patient is not exposed to cold for a length of time as during the application of leeches, and more blood can be drawn when cupping is properly performed. After this has been done a sinapism should be applied to the loins and the bowels opened by means of a pill composed of three grains of blue pill and five of colocynth mass, followed in the course of an hour by a black draught or a dose of castor oil. If the bowels have been long constipated previous to the attack, a purgative enema, containing a table spoonful of turpentine, should be administered before doing anything else, as it not unfrequently happens that collections of hardened fæces in the large intestines give rise to many symptoms resembling lumbago, and always aggravate that disease. Supposing then that the bowels have been freely opened and that depletion, either local or general or both, has been practised, the patient should be placed in a slipper or vapour bath, if these can be procured, and afterwards placed between the blankets in bed, and the following draught administered:—

Solution of the muriate of morphia, thirty drops.
Ipecacuanha wine, twenty drops.
Water, one ounce.

This will generally procure a short sleep and cause a degree of perspiration. Subsequently he should take a table spoonful of the following mixture every hour and a half:—

Take of water of the acetate of ammonia, two ounces.
—— Antimonial or Ipecacuanha wine, two drams.
—— Laudanum, thirty drops.
—— Sweet spirit of nitre, six drams.
—— Water, four ounces. Mix.
This mixture should be well shaken previous to its exhibition.

When the sinapism has been removed for some time, the back may be rubbed with spirits of camphor and hartshorn, or with spirit of turpentine, and this should be frequently done when the pain begins to decrease. If the acute symptoms do not seem to yield to the above treatment, further local depletion by cupping must be resorted to, followed by blisters to the part, continuing the constitutional remedies already recommended. In slighter cases, the warm bath, together with frictions by means of flannel or the flesh brush, and the stimulating liniment of camphor already spoken of, with attention to the bowels, skin, &c., constitute the principal indications of treatment. During recovery, the warm baths should gradually be reduced in temperature, and subsequently the use of cold water dashed on the loins and followed by frictions with the flesh brush should be had recourse to, and the patient should ever afterwards wear a broad flannel belt round the body next his skin. See *Rheumatism.*

LUMBAR ABSCESS. A collection of matter forming within the abdomen in the lumbar region, sometimes pointing externally at the back part of the loins, but more generally passing along the course of the psoas muscle, (see plate of muscles), and presenting at the upper and inner part of the groin. This disease is sometimes ushered in with pain in the loins and other symptoms of lumbago, but in general the collection is of a chronic character and attended with little pain; indeed large collections of pus often form here without almost any pain further than stiffness and uneasiness felt in walking. When the matter passes down towards the groin a swelling forms and fluctuation can be felt; this disease is generally accompanied by caries of the bodies of the vertebræ. If the disease be ushered in with painful symptoms, local bleeding, followed by fomentations, should be used, and the febrile state of the constitution alleviated by the exhibition of gentle laxatives, diaphoretics, and anodyne medicines. In chronic cases or those attended with no acute symptoms, counter-irritation by means of issues or setons must be had recourse to. Where the fluctuation is distinct the abscess should be opened with a lancet, the opening must be sufficiently large to allow the exit of the flaky pus, and after the contents have been evacuated the opening should be closed by sticking plaster, as it has been found that the admission of air into the large cavities of such chronic abscesses frequently gives rise to a great degree of irritative fever. In all cases of lumbar abscess there is a degree of hectic fever, and after they have been opened and continue to discharge, this usually is found to increase under such circumstances; the patient's strength must be supported by means of nourishing diet, port wine, quinine, and the other remedies directed in our article on *Hectic.*

We have been purposely very brief and general in our detail of the symptoms and treatment of this disease, as it is one of those diseases we should never recommend the non-professional practitioner to meddle with.

LUNGS. The lungs are the organs of respiration, and are situated in the lateral parts of the cavity of the thorax, which during life they completely fill. Each lung is of a conical figure; the base rests upon the diaphragm, and is concave, whilst the apex projects a little above the first rib into the neck. Their external side is smooth and convex, the internal flattened, and at its middle third the bronchus and pulmonary artery enter the lung, whilst the pulmonary veins pass out. The aggregate of these vessels attaching the lung to the heart and trachea, is termed the root of the lung. Each lung is divided into lobes by a deep fissure which runs obliquely from behind, downwards, and forwards. The upper lobe of the right lung is sub-divided into two, thus giving three

lobes to the right lung. The lungs have a peculiar soft feel, from the air contained in the air cells; their colour is gray, mottled, with dark bluish spots in the adult; in young children they are redder and paler. The parenchyma, or substance of the lungs, is composed of the ramifications of the pulmonary arteries and veins, of the bronchial arteries and veins, the pulmonary nerves and lymphatic vessels, and the ramifications of the bronchial tubes, which terminate in numerous air cells. The dark blood is propelled from the right ventricle through the pulmonary artery, whose fine capillary or minute ramifications are spread on the delicate walls of the air cells, and thus during respiration is effected the important change of arterialization of the blood; or in other words, the dark blood is deprived of its carbonic acid gas, which combines with the oxygen of the atmospheric air taken into the air cells during inspiration, the impure air being then evolved from the lungs during the act of expiration. The blood thus rendered arterial, and fitted for the purposes of nutrition, is returned to the left side of the heart by the pulmonary veins. The bronchial vessels are the nutrient vessels of the substance of the lungs. Each lung is enveloped by a fine shining serous membrane, which at its root is reflected towards the walls of the chest, which it covers, thus allowing of free motion between the lungs and the ribs. This membrane is termed the pleura.

The principal diseases of these important organs will be found treated of under the articles *Phthisis, Pleurisy, Colds, Cough, Bronchitis, Catarrh,* &c. At present we shall confine ourselves to detailing the symptoms in treatment of inflammation of the lungs.

LUNGS, Inflammation of, or *Pneumonia.* By this term is meant inflammation of the substance of the lungs, and not of their investing membrane or pleurisy, for although in popular conversation these diseases are often confounded, they are nevertheless quite distinct. The symptoms of inflammation of the lungs are as follow: The disease is generally ushered in by what is called a common cold. There is at first shiverings and cough, restlessness at night, and what is called a feeling of stuffing at the breast, and not unfrequently sore throat. These symptoms gradually become worse. The patient becomes hot and feverish, with dry skin, foul tongue and headache, and has a feeling of weight and oppression, or fixed pain; on attempting to take a full breath, respiration is imperfect, the face is flushed, and frequently even purple or livid, owing to the imperfect state of the pulmonary circulation. The pain in pneumonia differs from that of pleurisy, being more diffused, and being duller, or rather a feeling of weight and oppression than actual pain, whilst in pleurisy the pained part can generally be covered by the points of the fingers, and is of an acute nature. On taking a breath it is often compared by patients to the stab of a knife. The pulse in inflammation of the lungs is hard and full, and generally beats from 90 to 100 in the minute. There is great thirst, and generally a sense of fullness about the head; the tongue is moist and furred.

When pneumonia is about to end in resolution, the expectoration becomes freer, less viscid, and tinged with blood; the cough and oppression less, the pulse becomes softer, and the skin moist; in fact, all the symptoms gradually abate, and respiration becomes natural. When about to end in suppuration, there are repeated shiverings, the febrile state becomes less, but there is a degree of hectic, the pain becomes more fixed and less severe, but there is greater oppression on attempting to breathe. The patient can lie with ease only on the affected side, and these symptoms are followed by empyema or by expectoration of purulent matter. (See *Empyema.*) When inflammation of the lungs is protracted beyond seven or eight days, without symptoms of suppuration appearing, the patient not unfrequently dies suffocated, owing to the condensed state of the lungs preventing respiration, and so interfering with the arterialization of the blood. In such cases, and also in those where gangrene takes place, there is generally a sudden remission of the painful symptoms prior to death.

The treatment consists, as in all inflammatory complaints, in reducing the force and quantity of the circulating fluid, by abstracting blood, both generally and locally, in the first instance, and then controlling the force of the circulation by the exhibition of antimony and other medicines, which, by producing nausea, depress the circulation, and promote perspiration from the surface; and by the use of gentle aperients, and light farinacious diet, and cooling drinks, to allay irritation, and clear out the intestinal canal. With this plan in view, when a patient in the acute stage of pneumonia presents, we should bleed him from the arm till fainting takes place, and afterwards employ cupping over the chest, followed by a blister. The general bleeding may be repeated in four or five hours, if the symptoms do not yield, and again to the same extent, if necessary; at the same time we must warn the general reader that it is unsafe to bleed so often, unless under the direction of a medical practitioner. At the same time that these measures are had recourse to, a gentle purge, such as five grains of calomel, with five of extract of colocynth, may be administered, followed in five or six hours by some gentle saline aperient, as Rochelle salt. Immediately after the operation of bleeding is completed, the patient should have the following draught:

Take of tartar emetic, one grain.
——— Battley's sedative solution of opium, ten drops.
——— Cinnamon water, half an ounce.

This should be repeated every second hour, omitting the opiate when the tendency to vomiting, which the antimony generally induces at first, has subsided. The antimony given in this form is generally found of the greatest service; but in some cases it produces excessive vomiting and purging. Under such circumstances it will be advisable to omit it for a short time, and then give it in smaller doses, as for example, a grain dissolved in four ounces of water, and a table spoonful or two given for a dose. After a time, if the disease continues, the dose may be safely increased, as its emetic effects cease, or ipecacuanha may be substituted, combined with a small quantity of some opiate. These means will, if timeously employed, generally be found successful; but in some cases where bleeding cannot be freely used, or perhaps not used at all, it will be necessary to try the antimony first, and then calomel, in doses of two grains, combined with three or four of Dover's powder, and repeated every fourth or sixth hour, till the mouth is slightly affected. In the latter stages of the complaint, particularly in old people, camphor, musk, wine, and other stimuli become absolutely necessary; and indeed in such cases the free use of wine or brandy and water, with quinine, and combined with the warm bath, has been found of the greatest benefit. But we need scarcely repeat what we have already so often inculcated, that these difficult cases should never be treated by the non-professional.

LYING-IN-WOMEN, Management of. This article, which ought to be read in conjunction with that on *Labour*, is one of the most important to nurses, and to the domestic practitioner; and we cannot do better than quote the succinct and simple directions laid down by the late lamented Professor Hamilton of Edinburgh, in his Outlines of Midwifery:

'Immediately after delivery, a suitable cordial is to be given; the belly is to be firmly and equably compressed by means of a well-adapted roller, and the body linen should be carefully shifted. Quiet, due ventilation, keeping the apartment at a regular temperature, (not exceeding 60° of Fahrenheit's scale) and great moderation in diet, ought to be strictly enjoined. Regular attention must be paid to the state of the bladder and of the bowels, which last should be kept open by means of gentle aperient medicines, and the external parts of the passages should be bathed at least daily, as long as there is any discharge, with a little warm spirits and water.

'Whenever there is any mark of approaching secretion of milk, the infant should be applied to the breast if the patient is to give suck; and if otherwise, means are to be adopted to discourage its formation,' such as rubbing the breast for a quarter of an hour at a time with a little warm oil or lard, applying vinegar cloths, &c., and exhibiting saline purgatives.

'In the better ranks it is seldom that the patient ought to be taken out of bed sooner than on the third or fourth day after delivery; and any attempt at the erect posture should be discouraged, so long as the uterus remains bulky. It is of great consequence that lying-in women should be visited daily for the first ten days at least; and at each visit the state of the pulse, of the belly, and of the cleansings, should be carefully inquired into. Whenever the pulse exceeds considerably the natural standard, after the patient has recovered from the immediate fatigue of delivery, it indicates some present or approaching indisposition, unless it obviously proceed from the secretion of milk.'

If the belly be hard, or swelled, or pained, on pressure, particularly if accompanied by headache, and suppression of discharge from the womb, quick pulse, and hot skin, medical aid should be instantly called in, as the symptoms indicate serious disease. As regards the lochia or cleansings, the red-coloured discharge only continues naturally for three or four days at most, and when the colour alters, the discharge has not naturally an excessively offensive smell, although it may sometimes cause excoriation. Any deviation in these respects marks some morbid change, and where the discharge becomes scanty or suppressed, we generally find it give rise to disagreeable symptoms. This discharge ought, therefore, to be encouraged by giving the patient warm diluent drinks, fomenting the lower part of the belly, and the external parts, and administering bland warm enemata by the bowel. In some cases we find the bloody discharge return after it has ceased for some days, and become copious, giving rise to great debility. In such a case an examination may be made, and if any clots are found remaining in the passages, these should be removed, and the passages cleaned out by injecting luke-warm water by means of an enema syringe; subsequently astringent injections of alum water or decoction of oak bark may be thrown up the vagina, and if there be much general debility, small doses of quinine exhibited, and a small quantity of wine allowed. See *Labour*, *Abortion*, *Flooding*, &c.

LYMPH. This term is applied to the clear colourless fluid which circulates in the lymphatic vessels, and in surgery it is applied to denote a clear glutinous fluid, effused on cut surfaces after bleeding from the vessels has stopped, from its forming the medium by which the cut surface adheres; in the first instance it is termed adhesive or coagulable lymph. See *Adhesive Inflammation*.

M

MACE is the thin membranous envelope which surrounds the nutmeg, and is a kind of lining to the external shell; it is of a red yellow colour, having the odour and taste of the nutmeg, and yields a colourless oil, possessing, in a high degree, the taste, flavour, and properties of the mace. Before being exposed to dry, the mace is usually sprinkled with salt-water, probably to preserve it from the depredations of insects. Good mace has a strong agreeable smell, a bitterish acrid taste, is thin and flexible, and of a deep colour, which it acquires in drying. If of a whitish or pale yellow colour, with little smell or taste, brittle, and divided into fewer slips, it may be considered of a bad quality, and it is more than likely has been deprived of the greater proportion of its oil.

Mace is stomachic and stimulant, and in large quantities narcotic. It is used in infusion to check vomiting, and is taken, in substance, in doses of from five grains to a scruple, and the oil in doses of two or four drops on lump sugar as a carminative and cordial. It is, however, more employed in cookery, pastry, and confectionary than in medicine, to give flavour, and render more agreeable rich and high seasoned dishes. Indeed it is a spice that should be very moderately used, especially by the nervous and paralytic. The oil of mace, or that of nutmeg, is of use in flatulent colic, and for covering the taste or smell of disagreeable medicines.

MACERATION signifies the steeping of vegetable or animal substances in a cold liquid. In the former case, the result is the extraction of some active principle in the vegetable, and is similar to an infusion. In the case of animal matters, maceration is had recourse to with the view of separating the different tissues from each other.

MADDER, or *Rubia Tinctorium*. Madder root has a bitterish austere taste, a red colour, which it imparts to water, alcohol, and essential oils, and is almost inodorous. It is perennial and cultivated in great quantities in England for the use of the dyers. It was formerly more celebrated than at present, but from our own experience, we think it a good and safe domestic medicine. When it is used as medicine, however, it should be procured before it is pulverised, as there are sometimes other roots, &c., that may be found among that ground for dyeing, else it must be procured from an apothecary. The following powder has been found of very essential service in difficult and scanty menstruation, taken three times a day, in a glass of pennyroyal or peppermint tea, or where there is no objections to smell or taste, in rue tea.

Powder of Madder, one dram.
——— Savin tops, one scruple.
Sulphate of potash, four scruples.
Mix intimately, by rubbing these ingredients together in a Wedgewood mortar, and divide in four equal doses, to be used as above directed.

The same powder, omitting the savin, may be given to weak ricketty children, with laxness and wasting, as much as can be lifted on a sixpence, or half that quantity to be given the child, according to its age, in currant jelly or the thin part of Scotch marmalade, twice a day. It may likewise be given in decoction, one ounce boiled in a pint and half of water, and strained while hot; two drams of bruised cinnamon may be added to the decoction fifteen minutes before it is removed from the fire. Of the strained decoction, in which may be dissolved four ounces of refined sugar, (while it is hot,) two tea-spoonfuls may be given three times a day.

MAGNESIA. One of the primitive earths. Magnesia belongs to the class of alkaline earths, and as it possesses an affinity for acids, it forms a useful medicine in cases of acidity in the stomach, as it attracts the free acids, forming with it a neutral purging salt, and producing gentle action of the bowels, and thus relieves the heartburn and other unpleasant symptoms arising from acidity. The dose of magnesia is from one to three tea-spoonfuls, and may be given in cinnamon or peppermint waters, or in milk and water when intended for children. Calcined magnesia is the best and purest, and is the only kind which should ever be given to children. The carbonate or common magnesia has also the effect of alleviating the acidity on the stomach; but as it contains a quantity of carbonic acid, it is apt to give rise to flatulence and irritation of the bowels, and therefore the calcined is always to be preferred. Great care should be taken to keep it in well stoppered bottles, as it rapidly attracts carbonic acid from the atmosphere, and so become deteriorated. The almost daily use of magnesia in large doses is to be reprobated, as it soon loses its effect as a purgative, and not unfrequently gives rise to concretions in the intestinal canal.

MAHOGANY, or the *Swietinia Mahogoni*. The bark of this elegant and majestic tree is brown, rough, and scaly; and that on the branches gray and smoother, on the outside red, on the inside compact but brittle, with a bitter taste and aromatic odour; it contains no cinchoni or quinine. It has, however, been employed as a substitute for the Peruvian bark, and used

in intermittents or agues, and as a general tonic and stomachic. It is given in substance in the form of powder, in doses of from one to two scruples at intervals, in cinnamon water, or in the form of decoction and other forms of tincture, &c. in the same doses as the Peruvian bark, and in similar cases where that medicine cannot be procured. This may furnish a useful hint to settlers in, or emigrants to, those countries where the mahogany abounds. When bark or quinine can be had, they only should be depended on in ague; but the mahogany bark will be found a valuable tonic in the sequel of fevers of every description, and in debility of the digestive organs accompanied with diarrhæa.

MALARIA. This term is used to denote certain effluvia or emanations from marshy grounds, or the exhalations from decayed vegetable substances. Hence the various terms of marsh-fever, jungle-fever, &c. applied to ague or intermittent fever, under which head a detailed account will be found of the particular type of fever produced by malaria.

MALIC ACID. An acid obtained from apples and other fruits, and said to be identical with sorbic acid. When heated in close vessels it is decomposed, and forms a new acid called pyromalic.

MALIGNANT. A term used to denote diseases which are generally of a fatal character, as typhus, cholera, cynanche, &c.

MALT LIQUORS. See *Ales, Beer.*

MANNA is the concrete juice of the manna ash, or the *Fraxinus ornus.* It is obtained from other species beside the ornus, and especially from the rotundifolia. It is composed of a saccharine matter, nauseous, extractive, and mucilage; and is inodorous, sweetish, with a slight degree of bitterness, in friable flakes of a whitish or pale-yellow colour, opaque, soluble in water and alcohol. The best is in oblong pieces or flakes, and is called *flake manna,* moderately dry, friable, light, of a whitish or pale-yellow colour, and in some degree transparent. The common manna, or inferior kinds, are moist, unctuous, and brown, mixed with impurities. The difference in the qualities of manna is occasioned by the mode in which it exudes from the tree, or is collected. In the warmest season of the year a clear juice exudes from the stem and branches of these trees, which, when naturally concreted on the plants, and scraped off, is called manna in the tear; but if allowed to exude on straws or chips of wood fastened to the tree, it is called comulated or flaky manna. The common, or fat manna, is got by incisions made after the spontaneous exudation is over, and is in large masses of a redder colour. Manna is principally collected in Calabria, Apulia, and Sicily. Denon says that the manna produced in Sicily, though less known, is dearer than that of Calabria, and preferred to it.

The wood of the manna ash is hard, heavy, and bitter, and the decoction of it is said to be aperient, and of great efficacy in the dropsy. The effects of manna as a medicine are laxative, and in large doses purgative. Children readily take it on account of its sweetness, but it is more generally used as an adjunct to other purgatives; and infusion of senna and manna has been long known as a safe domestic physic for children. In some constitutions it acts very unpleasantly, producing griping, flatulency, and distension of the viscera; but these inconveniences may be prevented by the addition of any grateful aromatic. Manna operates so weakly as not to produce the full effect of a cathartic, unless taken in large doses, and hence it is rarely given by itself with this intention. It enters into the composition of the confection of cassia of the London college, and when properly prepared, it is an excellent mild purgative for pregnant females, in doses of from half an ounce to an ounce. It is likewise an ingredient in other officinal preparations. When used alone it may be given in doses of from half an ounce to an ounce to an adult; but it is more useful dissolved in other medicines, as for example—two drams of senna, and the same quantity of bruised ginger or cinnamon infused in half a pint of boiling water, and after it has macerated for an hour one ounce of manna may be added and allowed to dissolve in the infusion; when this has remained two hours longer, it may be strained, and a wine glassful taken every two hours till it operates. Manna was formerly much adulterated, but we think since the general peace and reduction in duty the practice has been relinquished. The best flake manna in bond is five shillings per pound, and the Sicilian one shilling and seven pence; there is now only three pence of duty on each pound.

MARASMUS, or what in Scotland is termed DWINING, is generally used to express that protracted state of ill health during which a child looses flesh and strength. This gradual wasting is rather a symptom than a disease, is generally owing to a deranged state of the digestive organs, teething, scrofula, and is a common symptom of diseased mesenteric glands, or tabes mesenterica. The child is fretful, and sleeps badly; the abdomen is generally tumid and tense, and the limbs are wasted; the skin is either hot and dry, or clammy to the feel. We must endeavour to find out the particular exciting cause, and direct our treatment accordingly. The digestive organs must be attended to, the bowels should be kept slightly open by means of gentle laxatives; acidity and flatulence must be remedied by antacids, such as calcined magnesia combined with a little aromatic powder; and small doses of bitter tonics

should be given, and the diet regulated; it should be nourishing, but at the same time easy of digestion, composed of milk in small quantities at a time, either boiled plain, or with a little water and arrow root, or Irish moss; with perhaps a small quantity of animal food, such as beef or mutton done on the gridiron for dinner; and, in some cases, wine in small quantities at a time may be given, but always with great caution, as it is apt to render children feverish; all oily and indigestible food is to be avoided, such as butter, pastry, sweetmeats, and unripe fruits. Gentle exercise in the open air, and sea-bathing, when the season is favourable, should be had recourse to; and the spine and belly should be frequently rubbed with camphorated spirits, or soap and camphor liniment, the friction being continued for at least a quarter of an hour at a time. See *Tabes.*

MARCH ROSEMARY, or *Statice Caroliniana.* The root of this plant contains gallic acid and tannin, and is intensely astringent, having an austere bitter taste. From its antiseptic and astringent properties, it is used in form of infusions or decoctions in gargles for aphthous and malignant sore throat, and internally in powder in chronic dysentery, in doses of from ten to thirty grains three times a day.

MARRIAGE is an institution coeval with the creation of man, having for its great objects the nourishment of the social affections, and the perpetuation of the human race. The results of marriage intercourse have a most important and beneficial tendency, not less to the individual than to the community of which he forms a part. At every period in his life, man is dependent upon his species for support and comfort; and for the interchange of feeling which dispels the solitude that would otherwise surround him. In infancy he clings to the maternal bosom, rejoices in a mother's smile, and is cherished and sustained by parental solicitude; in mature years he requires the sympathies of his kind, and feels the necessity for uniting in social compact with them; and in declining years he is once more dependent, in a greater or less degree, on his fellow-beings. Hence the marriage tie, resulting in family unions productive of the highest earthly good to society and individuals, has ever been cherished and held sacred in all civilized countries.

Marriage or conjugal society is a perpetual compact between man and woman, to live together in mutual love and friendship, for the procreation, conservation, and education of children. As a natural, civil, and religious contract between the first of our species, marriage was instituted, and has ever since been celebrated with a degree of solemnity and importance suitable to its dignity. In order, however, to constitute a marriage, a mutual love and charity, in the most extensive meaning of these terms, should subsist between the parties, to bear reciprocally their natural defects, tempers, and all other inconveniences and infirmities of life. Mutual fidelity and constancy are conjugal duties, and hence adultery is a grievous injury to either party. Nothing can be more infamous or injurious on the part of the female, than to supply an adulterous infant to her husband and to deprive the real heir of his rights, and it is equally iniquitous on the part of the husband to deprive his wife of her conjugal rights, and his children of his property and affection.

According to the law of these kingdoms the proper age for marriage is twenty-one in the male, and eighteen in the female; but most physicians and physiologists agree that the ages of twenty-five and twenty-one are more suitable.

We apprehend, however, that beyond a warning against contracting marriages at too early an age, we can lay down no general rule that will universally apply. The constitution is so differently developed in different individuals, that what would be prudent with reference to one, might be injudicious in regard to another. In tropical climates girls are married at the age of nine and become mothers at ten, while in the polar regions womanhood does not occur before the eighteenth or twentieth year. The evils resulting from too early marriages are diminished growth and strength of the male, delicate and bad health of the female, premature old age or death of either or both, and a feeble, infirm, and diseased offspring. Persons advanced in life, provided they are healthful and have observed strict continence, have much more vigorous infants born to them than the young who have injured their constitutions; for, as Dr Dewees well remarks, 'it is often-times better to be old in years than in constitution.' Dewees also observes, that feeble parents may also have robust children, but that these, according to his experience, seldom survive beyond the age of manhood, and old age was out of the question.

Whether marriage is or is not conducive to health and longevity is a question often proposed to medical practitioners, and it is now universally admitted that an answer in the affirmative must be given, to all healthful and well formed individuals, from adult age to the sixty-fifth year, and sometimes even later. Longevity does not, however, depend upon the excellence of proper regimen alone, but on the degree of vitality that is transmitted by parents. An individual born of healthful and robust parents ought naturally to expect a long life, but one whose parents are delicate, feeble, or aged, or affected with scrofula, syphilis, gout, pulmonary consumption, or calculous diseases will have a delicate and infirm constitution.

The precepts of Huffland, (a man whose opinions are certainly entitled to respect,) on marriage, are as follows:

'1. A person should not marry unless into a family remarkable for longevity.

'2. He should not marry a woman advanced in life, delicate, feeble, or affected with any deformity or disease, more especially those transmissable by generation, as gout, stone in the bladder, gravel, herpes, syphilis, scrofula, mania, or hæmorrhoids.

'3. The age most proper for women is eighteen, and for men twenty-four or five.

'4. They must not give themselves to the pleasures of reproduction but when the impulse is strong; and, above all things, avoid propagation immediately after or during drunkenness.

'5. Every pregnant woman ought to be considered as a laboratory, in which she prepares a new being, to which the slightest physical or moral emotion is injurious.

'6. Women of a nervous temperament, those who are very irritable, nervous, hysterical, subject to convulsions or epilepsy, ought to avoid matrimony, as they will give birth to infants who can live but a short time.'

This last precept is objectionable, because nervous and hysterical women are often cured by marriage. A professional or a non-professional friend who is consulted as to the propriety of marriage, ought to recollect that they touch a delicate chord of affections; that man is more than a machine, so that we should combine physical and moral medicine; that science of the heart and mind, without which all the learned or well informed in the medical profession are, or ought to be, well acquainted. There are many infirmities which are not sufficient to prevent married persons from affording each other mutual succour, and are no bar to conjugal union; but there are others which totally disqualify persons from engaging in this contract, such as mal-formations and certain incurable diseases.

Every individual who entertains a doubt as to his eligibility for the marriage union is anxious to obtain medical advice, and it is much to be regretted that it is too often the practice of the profession to treat the matter with levity or derision. Hence few are consulted, an unreserved disclosure of the symptoms is seldom given, and the inquirer is fearful that his condition will be made known to his acquaintances. Every practitioner is bound to secresy, and so far from treating his patient with levity or carelessness, should consider the case as attentively as any other that may come before him. Were this line of conduct generally adopted, an immense number of the public would not be driven to seek advice from ignorant and unprincipled empirics, who not only defraud them of their money, but also of what is far more important, their health. Indeed, those only who have devoted a considerable share of attention to this subject, can form any idea of the immense sums of money expended in procuring advice and medicine from these ignorant and unprincipled pretenders. 'But we cannot be surprised at this,' says Dr Ryan, 'when we bear in mind the innate love of offspring that exists in the human mind, the dissipations and excesses that are committed, and the too general inattention of the faculty to the subject.' Nevertheless these subjects deeply interest all ranks of society, and equally deserve the consideration, not only of the faculty, but of parents, guardians, and all those having the charge of youth.

The disqualifications for marriage may be resolved into two heads, physical and moral. Some diseases are aggravated by marriage, as inveterate scrofula, epilepsy, confirmed pthisis, caries of the vertebræ or spine, aneurism of the heart and large vessels, and a variety of other diseases that will occur to every reflecting mind. Rickets are often transmitted to infants, and this predisposition in the female exposes her to spinal and pelvic deformity; or in other words, disease of the bones of the spine and pelvis; and it too often happens in such cases, that the very moment she hopes to become a mother, she is consigned to the tomb. It is certainly therefore better that marriage should be interdicted, when the deformity is such that an infant cannot be born through the natural passage, but must be dismembered or extracted by the Cæsarean operation; and this opinion is held by divines, moralists, and legislators, as well as by physicians. Mania and other forms of mental imbecility, are disqualifications for the marriage contract, because these terrible diseases are usually hereditary. In addition to the remarks we have already made on the proper age for marriage, we may further observe, that all physiologists agree that early or premature procreation is objectionable on many accounts, from that imperfect development which exposes the woman to protracted suffering during parturition or child labour, and too often to loss of life. It is well known to those who practice obstetrics, that females who become mothers at a very early age, often purchase the honour of maternity at a very dear rate. Such persons are liable to numerous disorders during pregnancy, the pelvis being unable to support the gravid uterus, or it is too small for the passage of the infant, consequently, parturition will be laborious and protracted, and not unfrequently must be completed by mechanical means; while the degree of pressure produced by this process on the important organs or soft parts, causes great suffering and danger to the woman, and may be followed by deplorable diseases or death itself. It is also generally admitted by the most eminent writers, that the present mode of female education is highly injurious to health, predisposes to spinal curvature, and consequently to

deformity of the pelvis or basin, thereby rendering procreation highly dangerous to the weaker sex. Authors on diseases of the spine have very fully illustrated this position, and indeed, great injury is inflicted on the natural development of females by the custom of tight lacing; the functions of the thoracic and abdominal viscera are impeded, the development of the breasts and nipples is prevented, these parts are considerably absorbed from pressure, the lactiferous ducts are almost obliterated, the nipple will be, as it often is, undeveloped at the end of pregnancy, lactation or suckling will be impeded, the natural food of the offspring greatly diminished, while ten to one but the mother is afflicted with inflamed breasts or sore nipples.

No subject distresses many married persons so much as the want of offspring, or leads to so much domestic unhappiness. There is no doubt, that in many instances, both sterility and impotence are equally under the dominion of diet, regimen, and medicine, as other affections of the human frame; but it is a melancholy fact that persons so situated resort, as we have already stated, to quacks and impostors, and turn their back on those best qualified to afford advice on these subjects. Our object in the insertion of this article will be gained, if the medical faculty give serious consideration to those disqualifications for marriage which seldom fail in entailing misery on individuals and families, and use, as they are bound to do, their best endeavours to prevent those unhappy unions, which can only terminate in misery and death. No regular well-educated medical practitioner will ever disclose the secrets of a confiding patient, and where any doubt remains on the mind of an individual as to the propriety of entering into the married state, he should consult those legitimate advisers without suspicion or reserve, who are best able to tender seasonable and judicious advice on the subject.

In the meantime, however, we are sure we shall have the grateful acknowledgments of the youth of both sexes, for inviting their attention to this truly interesting topic; while we quote the following valid reasons adduced by Huffland in favour of marriage.

'1. United to a companion, attached to his or her family and children, the married person looks upon himself or herself, as belonging to the human race, with whose interests he or she compounds his or her own; whilst the unmarried person is generally an egotist, who studies only his own enjoyment, and cares very little for the good of society.

'2. The habitude of placing all the affections and happiness in the pleasure of pleasing a husband, of directing all her, (a wife's,) attention towards the welfare of her family, renders love no longer an animal passion, but a tender and delicate sentiment, capable of captivating the mind, and of preventing that inconstancy and shamelessness which expose to the most fatal excesses and to the most dangerous contagions.

'3. Marriage obliges a man to exert his talents, and to labour, whilst the bachelor is often a wanderer in his affections, idle, lazy, and exposed to a group of extraordinary, sad, and painful thoughts, &c.

'4. Marriage at once prevents the dreadful consequences of the privation and the abuse of sexual pleasure. We know, in fine, that the custom of living with the same person tends to render one indifferent to the purely animal passion, whilst variety excites desire, and exposes one to dangerous excesses.

'5. Marriage insures a number of tender pleasures attendant on the friendship which is established between two persons accustomed to live together, and to direct all their affections towards one common object.

'6. The intimate communication of pain and pleasure between married persons, softens the one and increases the other.

'7. Our children shed the soft balm of consolation on our last moments.'

The opinions of this celebrated philanthropist and physician will be responded to by every reflecting and observant mind who has taken even the slightest trouble to think on the subject.

Those who require farther information on this subject, may consult Dr Ryan's Lectures on Marriage, &c. &c., to which we are under obligations for many of the best hints and ideas in the preceding article.

MARROW. The oily substance contained in the cancelli of the hollow part of the shafts of the long bones.

MARSH-MALLOW. This plant is found on the banks of rivers. The roots, when boiled, yield a large quantity of mucilage, and hence the decoction of this plant is in great repute with domestic practitioners as a demulcent in coughs and other pulmonary affections. One or two pints, sweetened with a little sugar, may be taken during the day, in doses of half a wine glassful at a time. Its leaves are also used in preparing poultices and ointments for sores; but for these purposes it possesses no advantages over the common poultice.

MASTIC, or *Mastichi*. Mastic, or, as it is sometimes called, GUM MASTIC, is a resin obtained by incisions into the bark of the *Pistachia Lintiscus*, especially from the variety of *Chia*; it is a liquid exudation, which in part concretes on the stem, forming *mastic in the tear*, while part falls to the earth, is mixed with impurities, and constitutes common mastic. It is composed of a resin combined with an essential oil, and a matter resembling caoutchouc, which is not soluble in alcohol, and has been denominated *Masticine*. It is principally pro-

cured from the island of Chios. It has an agreeable odour when heated, is almost insipid, and is in globular semi-transparent irregular masses of a yellowish colour, soluble in ether, and partly soluble in alcohol.

Mastic is said to be stimulant and sialogogue, but its effects are analogous to, though much milder than, the turpentines. It is very rarely employed in medicine. It has, however, been used to check excessive discharges from the mucous membranes, as in leucorhea and gleet, in chronic pulmonary catarrh, and old diarrhœas, and chewed in paralysis of the tongue. The Turkish ladies use it as a masticatory to sweeten the breath, and preserve the teeth and gums; and dentists sometimes use it for filling up the cavities of carious teeth. Its principal consumption in Britain is as a cement and varnish, which it forms by being dissolved in alcohol; and it may serve many purposes to which the India rubber is now applied. When used in medicine, its usual dose is from ten grains to half a dram twice a day. We have seen it, however, cure old gleets when persevered in for some time, in doses of one dram and more three times a day.

MATERIA MEDICA. 'Every substance employed in the cure of disease, whether in its natural state, or after having undergone various preparations, belongs to the materia medica in the extended acceptation of the words. But in most pharmacopeias, the materia medica is confined to simples, and to those preparations which are seldom prepared by the apothecary himself, but commonly purchased by him as articles of commerce from druggists and others.'

MATERNAL IMAGINATION. It has long been a popular opinion that the imagination, or state of mind of the mother during pregnancy, has a very considerable effect on the child, and even that in most instances deformities and even monstrosities owe their origin to this cause. With a view, therefore, of easing and liberating the often painful and concealed anxieties of mothers, a few remarks on this subject may not be considered altogether out of place in a work of this description.

With regard to the influence which the mind of the father has upon his offspring, we are unable, owing to a deficiency of data, to form any correct opinion. 'It is a well-known fact,' says Mr Winslow, 'that the mind has a decided influence over the different secretions of the body; it influences the bile, the mother's milk, and the saliva, and it is not at all improbable that it should affect the seminal secretion. We know that many diseases are transmitted from a male parent to his children; these are called hereditary diseases; and how are these diseases communicated to his offspring but through the medium of the semen? It is only in this manner that we can satisfactorily account for the communication of the venereal disease to the fœtus in utero. A man who has secondary syphilitic symptoms has a child born with the same complaint; the mother is free from primary symptoms, and the father is free, and therefore the disease can only, as has been ingeniously conjectured by Mr Lawrence, be communicated to the fœtus in the semen. I have long been inclined to think,' continues Mr W., 'that the notions of Hesiod, though to some, who will not give themselves the pains of thinking on the subject, they may appear visionary and ludicrous, and altogether destitute of foundation, are correct, in his believing that the mind of the male parent can only affect his offspring by producing on the seminal secretion;' and our opinions are nearly in concert with those of Mr W. on this subject, and many others whose authority has considerable weight among the profession.

On the connection supposed to exist between the brain of the mother and her fœtus, Malbranche and others have some curious observations. Malbranche applied this doctrine of communication to explain the general resemblance which the offspring bears to the parents. Infants in the womb, according to his view of the case, have the same notions with their mothers, labour under the same passions, see the same things, and have the same thoughts. This doctrine of communication between the mother and infant, and the influence of the imagination of the mother on the fœtus in utero, or more plainly, in the womb, has been revived in modern times by Sir E. Home. Sir E. H., in a lecture on the existence of nerves in the placenta or afterbirth, delivered before the Royal Society in 1824, endeavours to prove that there is a connection between the brain of the child and that of the mother, as well as that every part of its body is connected by the medium of nerves; by which we are led to understand the degree of dependence in which the fœtus is kept during the whole time of utero-gestation, or during pregnancy. We had no mode, according to Sir E. H., till this discovery was made of estimating the influence that could be produced upon the child by the affections of the mind or body of the mother; and, therefore, the instances that have occurred were considered as idle stories, or accidental occurrences, for which no satisfactory reason could be assigned, and that upon no better ground than that they do not always take place under similar circumstances, which nothing connected with nerves ever does. That they do sometimes occur, no one will be so hardy as to deny; and when they do, we cannot now be at a loss for a mode of accounting for their doing so. In confirmation of this opinion, the author proceeds to relate several well authenticated cases, in which the mind of

the mother has sensibly affected the fœtus or unborn child in the uterus or womb. If a nervous communication between the brain of the mother and that of the fœtus be satisfactorily proved to exist, there would be, in our opinion, no difficulty in proving, beyond a doubt, that any great mental agitation of the mother must necessarily affect the condition of the fœtus. If the arteries depend for their action on a supply of what is called nervous energy, the arteries in the placenta may have also transmitted to them a supply of the same principle, in order to enable them to perform their healthy functions. Every idea which enters the mind must produce an action more or less in the nervous system. Sensations must be transmitted by the nerves to the sensorium, in which organ perception takes place. The action on the nervous system is in proportion to the nature of the idea which enters the mind. If an irritable nervous woman, in a state of pregnancy, is agitated by any frightful idea, a violent commotion takes place in the nervous system; and if the statement of Sir E. Home be correct regarding the nervous communication between the mother and child, there must be no absurdity in supposing that a violent agitation of the mind of the mother should cause a corresponding affection of the nervous system of the fœtus; and as the due and healthy performance of the arteries which deposit the nutritious matter depends upon the healthy action of the nerves, any great derangement in the nervous functions must necessarily modify, and, in some degree, affect the corporeal frame of the infant. In what other way can we account for the various formations with which children are sometimes born? That women who live out of the vortex of fashionable life, and are subjected to little or no mental anxiety, have almost uniformly healthy and well-formed children, is a well-known and indisputable fact. Indeed, it is an almost incontrovertible assertion, that the future good health of a child depends in a great measure upon the state of the mother's mind, and this is the opinion of the most celebrated physicians and physiologists of the day on this truly interesting subject. Those who have had the best opportunity of noticing how much the mind of the mother affects the future health and constitution of the offspring, among whom is M. Esquirol, tell us that it is often in the natural womb that we are to look for the true cause, not only of imbecility, but also of the different kinds of mania and mental alienation. This acute observer remarks that during the French revolution many ladies then pregnant, and whose minds were kept constantly in a stretch by the anxiety and alarm inseparable from the epoch in which they lived, and whose nervous systems were thereby rendered irritable in the highest degree, were afterwards delivered of children whose brains and nervous systems had been similarly affected to such a degree by the state of the parent, that in future life, as children, they were subject to spasms, convulsions, and other nervous affections; and in youth, to madness, imbecility, or mental alienation, almost without any exciting cause. The extent to which the temporary state of the mother during gestation may influence the whole future life of the child, may be conceived from a single fact recorded by the same author, and referred to in Combe on Mental Derangement. A pregnant woman, otherwise healthy, was greatly alarmed by the threats of her husband in a state of intoxication. She was afterwards delivered at the usual time of a delicate child. The child, however, had been so much affected by the mother's agitation, that up to the age of eighteen it continued subject to panic terrors, and then became completely maniacal. We could, did our limits permit, quote numerous cases, some from our personal observation, where the irritable state of the mother, and the workings of maternal imagination, had the most pernicious influence on their offspring.

Without pursuing the subject farther, we may here remark that the facts and circumstances adduced convey a most important practical lesson, not only to the pregnant woman herself, but to her husband, friends, and medical advisers. The latter, especially, ought to be careful in pointing out the evil consequences likely to result from great mental perturbation; and the others, viz. the husband and friends, ought most studiously to avoid giving any cause for mental excitement, while she that would wish to see a vigorous and healthy offspring, should resolve not to be fretted and annoyed by every little trivial cause, either of offence, loss, or vexation, that so much disturb the minds of many pregnant females. But how often do we witness nervous and irritable females, far advanced in gestation, exposed to great sources of mental agitation, and what is the result? In a great majority of instances they give birth to weakly and unhealthy children. Everything calculated to excite the nervous system ought to be most religiously avoided by females in a state of pregnancy; and they should, as will be found under the article *Pregnancy*, debar themselves from the mental excitement inseparable from midnight balls, theatrical representations, and even morning concerts. To those unacquainted with the intimate connection subsisting between the nervous and vascular systems, and with the influence of the mind on the health of the corporeal frame, it may appear visionary and even ludicrous to lay down rules for the mental management of individuals under these circumstances. But not only the regular physician, but likewise all who have taken pains to make them

selves acquainted, even superficially, with the physiology of man, and those laws by which the different functions of the human body are regulated and governed, will think otherwise. The ancient physicians, who, in many instances, were more observant of nature than many of the faculty of the present day, bearing in mind this important principle, have recommended that women in a state of pregnancy should carefully avoid all causes which have a tendency to rouse the animal passions, that their minds should be kept calm and free from all excitements. But how very different is the scene we often witness in the present day, of the most delicate and nervous women exposed to scenes calculated to rouse to the highest pitch of excitement the nervous functions. Mr Winslow, in his excellent paper on this subject, mentions the case of a lady far advanced in pregnancy, who was so excited by a theatrical representation which she was witnessing, that she was removed from the theatre in a state of labour, and the poor infant she gave birth to was born dead.

Without entering on the consideration of the effects which the maternal imagination may exert on even the external form of the fœtus in the womb, we most seriously advise all child-bearing females to ponder well the hints offered in this article, and likewise in the paper on *Pregnancy* already referred to. A little attention to these will secure them a well-formed and healthy progeny, endowed with the inestimable blessings of sound minds in sound bodies. We are far from debarring mothers, that most interesting part of the human family, from any rational enjoyment suited to their circumstances. Far otherwise, as we hope, the general tenor and design of our work, especially those parts of it more immediately destined for their perusal, will convince them of the sincerity of our wishes and exertions for the promotion of the health and comfort of themselves and families, See *Pregnancy*, *Nurse*, &c. &c.

MEADOW SAFFRON, or *Colchicum autumnale*. This is a perennial plant which grows in wet meadows. The bulbous root and the seeds are used in medicine, and the best time for gathering them is from June till the middle of August. The taste of the root is bitter and acrid; a saturated vinous solution is prepared by macerating an ounce and a half of the dried root, or an ounce of the seeds, in a pint (12 oz.) of sherry wine. The dose is from thirty to sixty drops in water, and is recommended as highly beneficial in gout, and also in rheumatism after the inflammatory state has been moderated; and, in some instances, it is useful to combine it with an opiate, when it is found to produce violent purging or vomiting. In some cases it acts on the bowels; in others on the kidneys, increasing their secretion; and at other times, and most frequently, producing perspiration. The celebrated quack medicine for the gout, known by the name of the 'Eau medicinale d'Husson,' is said to be a preparation of colchicum. This medicine generally acts at first as a violent purge, and this is generally followed by profuse perspiration which relieves the paroxysm, which in this mode of action is similar to that of a full dose of colchicum wine. Before concluding, we must warn our readers that it is a dangerous remedy unless used with extreme caution.

MEASLES, or *Rubeola*. The measles is a disease characterised by a fever of the inflammatory type, together with all the symptoms of a violent catarrh or cold, and particularly by a copious discharge of watery humour from the eyes and nose. Or, according to the correct Cullenian definition, a contagious synocha (inflammatory fever), with sneezing, watery eyes, dry cough, and hoarseness. On the fourth day, or a little later, numerous and small pimples break out on the surface, which are scarcely elevated above the skin, and which, after three days, go off in small branny scales. The eruption, for the most part, first appears upon the face and neck, and successively spreads to other parts of the body. The fever does not abate, as in the small-pox, upon the appearance of the eruption, but rather increases, and the eyes and eyelids always show the presence of this disease, being somewhat inflamed and suffused with tears. Sometimes the eruption at first appears to come out full and free, but very soon disappears; and oppression at the chest, difficulty of breathing, and other internal symptoms are manifested. At other times the skin shall be but just sufficiently marked to establish the character of the complaint.

It is a remarkable circumstance that measles and scarlet fever were not properly distinguished from each other, until about the commencement of the last century; a circumstance which has led some to suppose that scarlet fever is entirely a disease of modern times. The *diagnosis* between the two complaints, in mild cases, is not, perhaps, always very easy, nor is it, happily very important; but when they are either of them very severe, no difficulty occurs in the discrimination, and it then becomes a very important practical point, as they are of an opposite tendency, and require very different modes of treatment; and we have known some very serious mistakes occur for want of a due discrimination on this subject. The eruptions are more papular or elevated in the centre than those in scarlet fever, and also by the preliminary coryza or discharge from the nose, and sneezing, as opposed to the greater degree of irritation, being confined to the throat in scarlet fever. (See *Scarlet Fever*.) Attention, how-

ever, to the attendant peculiarities of the two diseases will, however, prevent the occurrence of any mistake in the diagnosis; and we shall, therefore, furnish the reader with a more detailed history of the symptoms and the varieties of the disease. Some nosologists have noticed several varieties, but they may be all comprehended under two heads; the one attended with more or less of the symptoms of general inflammation, and the other accompanied by a putrid diathesis. The disease may prevail at all seasons of the year as an epidemic; but the middle of winter is the time it is usually most prevalent, attacking persons of all ages, but children are most liable to it; and measles have therefore been ranked among the diseases of childhood. Measles prove most unfavourable to such as are of a plethoric scrofulous habit. Like the small-pox, they never affect people but once in life, and their contagion appears to be of a specific nature. The eruption is preceded by a general uneasiness, chilliness, and shivering pain in the head, in grown persons; but in children a heaviness and soreness in the throat, fever, sickness, and vomiting, as happen in most fevers; but the chief characteristic symptoms are a heaviness about the eyes, with swelling, inflammation, and a defluxion and great acuteness of sensation, so that they cannot bear the light without pain, together with a discharge of serous humour from the nostrils which produces sneezing, a symptom scarcely ever occurring in scarlet fever. The heat and other febrile symptoms increase very rapidly, to which succeeds a frequent and dry cough, a stuffing, great oppression, and oftentimes retching to vomit, with violent pains in the loins, and sometimes a looseness; at other times there is great sweating, the tongue foul and white, the thirst very great, and, in general, the fever runs much higher than in the milder sort of the regular small-pox. The eruptions appear about the fourth or fifth day, and sometimes about the end of the third. On the third or fourth day from their first appearance, the redness diminishes, the spots, or very small pustules, dry up, the cuticle, or scarf-skin, peels off, and is replaced by a new one. The symptoms do not go off on the eruption, as in the small-pox, except the vomiting; the cough and headache continue, with the weakness and defluxion on the eyes, and a considerable degree of fever. On the ninth or eleventh day no trace of redness is to be found, but the skin assumes its wonted appearance; yet without there have been some considerable evacuations, either by the skin or by vomiting; the patient will recover strength, but the cough will continue, the fever return with new violence, and bring on great distress and danger.

In the more alarming cases, spasms of the limbs, subsultus tendinum, (or starting of tendons, and in some places of Scotland called leaping of the veins,) delirium, or what more frequently happens, coma or drowsiness, supervene. This last symptom so frequently attends the eruptive fever of measles, that it is by some regarded as one of its diagnostic or distinguishing symptoms. As in other febrile diseases, in measles the symptoms generally suffer some remission towards the morning, returning, however, in the evening with increased severity. Even when violent, the measles are not usually attended with a putrid tendency, but it sometimes happens that such a disposition prevails both in the course of the disease, and at its termination. In such cases, petechiæ, or small red spots, like flea bites, are to be observed among the eruptions, and these last become livid, or assume almost a black colour, so as to have acquired the name of the *rubeola nigra*, or *black measles*. Hemorrhages break out from different parts of the body, the pulse becomes frequently feeble, and perhaps irregular, universal debility ensues, and the case proves fatal. In those cases where there is much fever, with great difficulty of breathing, and other symptoms of inflammation of the lungs and their envelopes, or where there is great debility, with a tendency to putrescency, there will always be considerable danger; but the consequences attendant on the measles are, in general, more to be dreaded than the immediate disease, for although a person may get through it, and appear for a time to be recovered, still hectic symptoms and pulmonary consumption may afterwards arise and destroy him, or an ophthalmia, or chronic diarrhæa, or a dropsy ensue; and who has not heard of the cough of the measles, a most troublesome complaint, especially in the winter season, which usually attends the sufferer to the grave? and when we add to this the almost certain effect of calling a scrofulous disposition into action, and of its manifesting its presence by external ulcers and running sores, it is surely a matter of no little importance to watch the approach, progress, and termination of measles, with all the experience and skill that can be called into action.

The *prognosis* or *unfavourable symptoms* may perhaps be summed up by stating that the result is always, in some measure, uncertain, if the fever runs high, if the difficulty of breathing be considerable, if delirium takes place, if the eruption display an unnatural tendency, if it assume a pallid appearance; especially if it become livid, and petechial spots are intermixed with it, considerable danger is to be apprehended. Diarrhæa, and vomiting, too, to any great extent, are bad symptoms; but slight diarrhæa, with a free or moist skin, with easy expectoration, are favourable signs. It is al-

ways well, too, to see a good and regular crop of eruptions.

Treatment. Rubeola, or measles, in every part of their course, exhibit an inflammatory aspect, and indicate the antiphlogistic regimen. But notwithstanding all their immediate and subsequent dangers, unless the constitution be predisposed to pulmonary affections, or, in other words, a consumptive tendency exist, the disease be unusually severe, or occur in very early infancy, or under some peculiarly disadvantageous circumstances, measles are not a very dangerous complaint, but is one in which it is necessary to act in the earlier stages with promptness and vigour, as, if this early opportunity be suffered to pass by, our remedies will be far less efficacious, or, perhaps, altogether inapplicable. The degree to which we are to carry the antiphlogistic or depleting system, must be determined by the circumstances of the individual case, by the character of the prevailing epidemic, the season of the year, and other collateral circumstances.

If the subject of the disease is a stout child of from six to eight or nine years of age, we should apply a mustard sinapism to the chest as far up as possible, of the size of the page of an 18mo. pocket bible, and allow it to remain on for half an hour; but as few children of that age will endure it as long, even fifteen minutes application will do great good. At the same time a powder will be administered, consisting of five grains of calomel, the same quantity of finely powdered nitre (saltpetre), and three grains of real James's powder, in a tea-spoonful of jelly, honey, or jam. So soon as the sinapism is removed, not fewer than six or eight leeches are to be applied to the upper part of the spot from which it has been removed, the part being previously well spunged with warm milk, and gently patted dry with a soft towel; in this case the leeches had all better be confined to the spot by a wide mouthed wine-glass, or small tumbler. While the leeches are sucking, a warm bath should be got ready, in which the child should be placed the moment the leeches drop off; the water should reach to the neck, so as to cover the leech holes, and a soft spunge kept gently playing over the bites, so as to promote the bleeding. At the end of twelve minutes, or fifteen if the child is pretty strong, he must be removed from the bath, well dried, and put to bed in warm well aired bed-clothes, and the leech-bites covered with two folds of fine warm dry linen rag, which will encourage the bleeding without occasioning damp or moisture. The stopping or encouraging the bleeding must depend upon the state of the pulse. A sixth part of the following mixture, or two table-spoonfuls, is to be given every three hours:—

Emulsion of gum Arabic, five ounces.
Nitre, or nitrate of potass, eighteen grains.
Tincture of foxglove, twelve drops.
——— henbane, twenty-four drops.
Simple syrup, one ounce.
Dissolve the powdered nitre in the emulsion, then add the other ingredients, and form a mixture.

In two hours after the powder has been given, half an ounce of Epsom salts, dissolved in a gill of warm water or linseed tea, may be administered as an enema. The air of the apartment should be kept of as uniform a temperature as possible, and every caution taken to avoid exposure to any current of air.

If the patient is an adult, precisely the same treatment may be followed; but the sinapism, in that case, must be as large as one of our royal 8vo. pages, and allowed to remain on for, at least, half an hour, and if from twelve to sixteen leeches cannot be obtained, blood may be taken from the arm from ten to sixteen ounces. The leeches are to be preferred, and the warm bath employed in the same way for fifteen or eighteen minutes, keeping up the temperature by the addition of small quantities of warm water. The quantity of the nitre in the powder is to be increased to ten grains, and that of the James's powder to five grains, but the quantity of the calomel may remain at five grains. The clyster or enema, too, is to consist of half a pint in place of a gill of the fluid, an ounce of the Epsom salts, and the quantities of the nitre and tinctures in the mixture are to be doubled; but the dose, time of administration, and other ingredients, as in the former case.

In stout children, of from two to four, all the ingredients of the various medicines, except the calomel, emulsion, and syrup, are to be reduced in quantity one half, that is to say, the James's powder, nitre, and tinctures; and likewise the size of the blister, and number of leeches; but in the times of administration, bathing, quantity of the mixture taken, &c. they are to be treated in the same way. It is, however, to be observed that in very young children of plethoric or full habit of body, leech bites are apt to continue to bleed too long, and this must be watched, that the depleting system may not be carried too far. Children under two years of age are not to have the sinapism applied, but two, three, or four leeches may be applied to the chest, according to the age and strength; and three grains of calomel, and one grain of nitre, and the same of James's powder given as a laxative; the child may be put in the bath, and afterwards well dried, and one-fourth part of the following liniment well rubbed on the chest and pit of the stomach (except on the leech bites) every four hours:—

Tinctures of henbane, hemlock, and fox-glove, of each twenty-four drops.
Soap liniment, three drams.
Mix, and form a liniment.

This liniment may be alternately rubbed along

the spine opposite the chest, and on the breast. We have sometimes applied leeches to the temples, as well as to the chest at the same time, when there appeared a more than ordinary affection of the brain; and in stout plethoric children, from ten to puberty, we have made very little difference in the treatment from that pursued in the case of adults. The most marked benefit will be derived from the use of the liniment, in abating the inflammatory action, especially when the powder prescribed has been administered every second night; in cases of children, of from one to two years old, for under that age we never administer more than one dose of the powder, and afterwards keep the bowels in a proper state by daily three grain doses of the powder of chalk, with mercury, and small portions of castor oil, giving a large tea-spoonful of a mixture formed of two ounces of the emulsion of gum Arabic, one scruple of powdered nitre, and one ounce of simple syrup. This tends to relieve the cough, and tends to keep the inflammatory action in subjection. However, we would never advise rubbing in more than half a dram of the soothing liniment, either on the chest, or along the spine, every four hours. There is, perhaps, no disease that is more benefited by a uniform and regulated temperature than this; and many lives, we are persuaded, might every year be saved by a ward devoted to the cure of measles being so heated, or, what is preferable, in families adopting such plans as will insure this desirable object in their own houses.

Adults will, in the early stage, find often-repeated small doses of a mixture composed of infusion of roses and Epsom salts, combined with the tinctures of foxglove and henbane, in the same proportions as those tinctures are ordered to be mixed with the emulsion of syrup, very useful where the emulsion cannot be procured. When the eruptive fever takes on the appearance of debility, and there appear petechiæ or spots, quinine, combined as in the following mixture, may with confidence be resorted to:—

> Sulphate of quinine, half a dram.
> Aromatic elixir of vitriol, one dram.
> Cinnamon water, eight ounces.
> Simple syrup, two ounces. Mix.

From half a wine-glassful to even a whole one may be given every three hours, according to the age and circumstances of the patient. In some cases the carbonate of ammonia tends to support the strength, when taken in often-repeated doses of the same quantity as the preceding:—

> Carbonate of ammonia, half an ounce.
> Cinnamon or peppermint water, eight ounces.
> Simple syrup, or syrup of ginger, two ounces. Mix.

These are safe medicines, so that in small often-divided doses, from a tea-spoonful up to a wine glass, they may be given either to children or adults.

As we have already stated, the maintenance of a regulated temperature, avoiding the extremes of heat, but shunning the direct application of cold, is a matter of the first importance, and should be constantly borne in mind. Any circumstance which may cause the sudden disappearance of the eruption is always to be guarded against, as indicating a dangerous state of inaction in the circulating system; and, should it occur, it must be removed by taking such stimulants as the mixture of carbonate of ammonia, as prescribed above, and even sometimes weak warm punch; but this latter must be done with caution, lest in this way we exasperate the violence of the febrile symptoms. Yet, sometimes not only additional external warmth, but likewise warm stimulants, become necessary from a sudden disappearance of the eruption, often without any apparent cause; and then warm negus, or warm punch, with a few drops of sweet spirits of nitre, may be administered.

On speedily checking the inflammatory symptoms, by the means we have pointed out, and continuing these means for a few days, we have seldom found any other medicine in the sequel necessary than the carbonate of ammonia mixture. The cough is sometimes so troublesome a symptom as to require particular attention; but, for the most part, whatever relieves the febrile state, will relieve the affections of the chest, and the liniment of such a strength as will suit the age and strength of the individual, will often afford considerable relief from the cough. When inflammatory symptoms are abated, tincture of opium, or some preparation of morphine, may be added to the liniment, and a form for this soothing liniment will be found under the head of *Morphia*. Attempts were many years ago made to communicate measles by inoculation, but these attempts failed, and the scheme has, for a considerable period, been relinquished. See *Blood-letting by Leeches*, *Scarlet Fever*, and the other articles referred to in the course of this paper. The formula for the mucilage of gum Arabic will be found in the *Domestic Pharmacopeia*.

MECONIUM; the dark fæculent matter discharged from the bowels of new-born infants; it is named meconium from its resemblance to the inspissated juice of the poppy, or soft opium. The meconium is generally evacuated soon after birth, but if it is not, it is apt to give rise to irritation of the bowels, and means should be resorted to for procuring its evacuation. For this purpose, all that is generally requisite consists in giving a little sugared water, or a little manna dissolved in water, or in applying a little bit of yellow soap, as a sup-

positary in the rectum. See *New-born Infants, Management of.*

MEGRIM, a species of painful headache, or rather an acute pain on one side of the head, generally above the temple. It is of a rheumatic nature, and is generally produced by cold, and not unfrequently by the irritation caused by carious teeth or stumps; in some cases also it depends on derangement of the digestive organs.

It is to be treated according to its exciting cause,—by extracting the teeth, giving purgative and alterative medicines, promoting perspiration, and in some cases by leeching and blistering the part.

MENORRHAGIA OR FLOODING. The term Flooding is applied to a more than an ordinary discharge of blood during pregnancy, or on occasion of abortion, or before, during, or after child-labour; that, however, is not the kind of flooding we intend to consider under this head, as they will be found more appropriately described under the articles *Abortion*, *Pregnancy*, and *Flooding*, to which we refer.

The kind of menorrhagia which we intend to consider, is that immoderate flow of the menses, also denominated a flooding, which Cullen has described as characterised by pains in the back, loins, and belly, similar to those of labour, attended with a preternatural discharge of blood from the vagina, more copious than natural, and occurring in women neither with child nor in child-birth.

Menorrhagia, or flooding, may appear in females who have still their monthly courses, also in those in whom this discharge has ceased to exist; this latter is very common from five, ten, fifteen years after the critical epoch. Old women even are sometimes seized with a sudden flooding, and they consequently imagine that their menses are returned. It is therefore necessary not to confound these attacks of menorrhagia, or an excessive discharge from the womb, with a copious menstrual discharge. True flooding has not the periodical regularity which distinguishes the menstrual discharge. Thus when one appears which lasts twelve or fifteen days, perhaps more or less, shortly afterwards it disappears either for ever or may return at indefinite periods. Sometimes the menses will make their appearance first, last one day or two, and the flooding commences the following morning, continues about ten days, and will of itself cease for twenty-four hours, but soon afterwards return again. At other times, the flooding precedes the menses, stops for a short time, and afterwards allows them to continue their accustomed course.

When the floodings are abundant, and continue for many years, it becomes constitutional and it would be imprudent to endeavour to check it all at once; for there would be cause to fear the appearance of serious symptoms manifesting themselves in other organs, and principally the lungs, whose sympathies are so intimately connected with the genital organs. Indeed, the state of the respiratory organs should be carefully watched in all cases where a female has been long suffering severely from menorrhagia, especially if the discharge has ceased, as the lungs are frequently affected in the sequel of the disease. So much is this the case, that some artificial drain, in the form of an issue, on the inside of the top of each thigh, may be necessary to relieve the pulmonary irritation.

The menstrual fluid is distinguished from other blood in that it does not coagulate; but as Dr Rigby remarks, we are 'unable to say how far the catamenia (another term for menses) may continue to be increased in a patient beyond the accustomed quantity, and yet preserve its peculiar character. Certain it is, that in almost every case of menorrhagia, where the discharge is at all profuse, it appears to consist entirely of blood, and coagulates as freely as in common uterine hæmorrhage at the birth of a child. By this mark, therefore, a female may always be able to know whether the discharge is ordinary blood from the womb, or the menstrual discharge, as, if the latter, it will not coagulate, (or as in Scotch, *lapper*,) while the common blood will.' This will only hold good, however, where the discharge is profuse; for we are inclined to think, with Drs Locock and Rigby, that the nice distinctions drawn between the discharge in a case of menstrual flooding and that which follows the birth of a child, in what is called uterine hæmorrhage, are neither correct nor practical. It is well known that the secretions from the different organs of the human body become remarkably altered, not only in quantity but also in quality, whenever the organ by which they are formed is affected by inflammation; and by a continuance of this state, the character of these secretions frequently becomes permanently changed. In like manner is it with the womb. We are not then to imagine that in menorrhagia, which is nothing more or less than a morbid condition of the uterine secretion, we are justified in considering the menses merely increased in quantity, and not also materially altered in its qualities.

Some physiologists, especially of the French school, consider that menorrhagia is to the womb what hæmoptysis or spitting of blood is to the lungs, and that as this symptom never or rarely exists without organic alteration in the pulmonary tissue, so, in like manner, flooding of long duration indicates almost always an organic alteration of the womb. Lisfranc, one of the most intelligent supporters of

this view of the case, however, observes, 'I do not intend to say that this is always the case; since, in medical science, there is no rule without an exception; but I have not found the contrary in the immense number of females I have had occasion to examine. That menorrhagia exists without local alteration, is possible, and I do not deny it; but I must declare, that I have not witnessed a single example.' From the habits of French females, we have no doubt organic disease of the uterus may be more common than in this country; but we have no doubt that many diseases of the womb remain hid and undiscovered from the delicacy that is felt in these kingdoms, not only by females, but by medical attendants; the one sometimes as loth to propose an examination as the other to submit to it; and we have frequently heard females say, they would rather die than submit to a professional examination.

The *causes* of menorrhagia are various: Sometimes it will result from the presence of polypi (see *Polypus*), at other times from a slight or serious inflammation of the body or neck of the uterus, or from more or less extensive excoriations of these parts; some of these require an examination with an instrument called the speculum, before their extent can be discovered, and from every cause of irritation within the pelvis, which determines blood towards the viscera of this cavity. Active menorrhagia is found to occur in plethoric habits, often apparently as a natural relief to an overloaded system, but aggravated by luxurious living, a sedentary and indolent life, hot rooms, and also by very violent exercise, or any other fatiguing exertion. Passive menorrhagia is caused by all those circumstances which lower the powers of the system, and weaken the action of the heart and arteries, but in both these cases there are local causes, such as polypi, &c. to which we have already alluded, which tend to divert the mischief to the uterus, and increase the circulation of the vessels of that organ, leading to an increased discharge, such as blows and pulls, and any other violence, frequent and recent abortion, leucorrhea, or whites, over indulgence in sexual intercourse, irritation in the bladder, diarrhœa, tenesmus, piles, ascarides, or scybyla, or hardened fæces in the rectum, or even habitual costiveness. Flooding is likewise occasioned by cancerous and other local diseases of the woman, that will be found described under their respective heads.

Menorrhagia, or uterine hemorrhage, treated as a symptom, may be momentarily arrested by local application, but to put an end to it entirely, it is necessary to discover and remove the exciting cause.

The *treatment* of this often fatal and harassing complaint is a subject of the gravest consideration, and often requires the most prompt and decided measures to be employed without delay, and it is only in situations and circumstances where professional aid cannot be procured, that the greater proportion of cases should ever be trusted to domestic management. As our work, however, is designed for those who are placed beyond the reach of medical aid, we shall detail the mode to be pursued as fully and clearly as possible, in the hope, that by attending to our instructions, some valuable life may be spared a little longer, in being snatched from a sudden and untimely death.

The plan of treatment may then be considered in three points of view. First, when the principal affection is either curable, or can be arrested without danger; or secondly, when the flooding is combined with some serious disease of another organ, which its suppression would inevitably aggravate; and, thirdly, when it depends on an incurable affection of the womb itself.

That there are cases in which a sudden suppression of menorrhagia may produce serious consequences, especially on those important organs, the lungs, we have already shown, even although no organic affection may at the time be perceived in the patient. It is therefore necessary to adopt preparatory measures, even when flooding is not of long standing, blood should be taken from the arm to the extent of from ten to fourteen ounces, or even a pound, according to circumstances. Basquellon never omitted this precaution, even when the patient had pallid lips, small pulse, and appeared bloodless, and frequently he found the pulse and strength of the patient re-invigorated under this treatment. This, however, is not a practice to be followed by an unprofessional attendant, as the patient might fall into a state of syncope or fainting, from which she might never recover. In all cases, however, of active flooding, where the circulation is not already greatly reduced, bloodletting must never be omitted. The patient must at the same time be kept in a state of quietude, and no warm food or drink should be permitted. A strong infusion of dried rose leaves, sweetened with refined sugar, and made agreeably, and with elixir of vitriol, should be used as common drink; or the infusion of agrimony, sweetened and acidulated with the elixir of vitriol. If there is any hardened fæces in the rectum, they should be speedily removed by an enema of soap and water, not warmer than new milk. After this has been done, another enema consisting of a gill of infusion of rose leaves, without the acid or sugar, forty drops of tincture of henbane, and twenty drops of tincture of digitalis, or foxglove, may be cautiously administered cold. The head of the patient should be lowered, and the pelvis or breach a little ele-

vated. Cloths wrung out of cold refrigerant lotions may be applied to the external parts of generation, and frequently shifted. The lotions may consist of half an ounce of sugar of lead, dissolved in two quarts of water and one of vinegar, or one quart of equal parts of vinegar and water and common spirits, or an infusion of roses and vinegar. If these means do not in a short time arrest the discharge, or rather greatly lessen it, in the course of eight or ten hours, another bleeding from the opposite arm may be had recourse to, and a soft spunge, moistened with either of the preceding lotions may be introduced into the vagina, which acts as a plug. If the vagina is free, and no local disease or impediment, one inch up will be sufficient, but if it is filled with morbid growth, or small polypi, it is necessary to carry it much farther. This operation any midwife, or active female friend will find little difficulty in performing. This is one of the most certain means of suppressing the flow of blood. It was first recommended to the notice of the faculty by the respected and talented Professor Burns of Glasgow, and is now adopted by the profession at home and abroad. In addition to these means, and the quiet already enjoined, the patient should be placed on a mattress, and lightly covered; no fire in the room; a total abstinence from warm and especially animal food of every description, whether solid or in the form of broths or beef-tea. Cold injections into the rectum, when once it has been freed from any hardened fæces (which of itself sometimes causes flooding) will be found of great advantage, and cold infusion of roses one of the best we can recommend; we have seen the enema of henbane and digitalis, when retained, effect great good. When the patient is strong it is often necessary to envelope the whole hips or pelvis with wet cloths, so as, if possible, to keep up a continued hip bath.

Dr Rigby, however, the son of a gentleman who wrote the first British professional classic work on this subject, very judiciously remarks, that 'the steady application of cold is a powerful sedative, but its action requires to be carefully watched, for we may thus lower the system too much, and produce mischievous effects. Where the discharge has been very profuse, and the patient much exhausted by it, we should be especially careful to attend to this point, for it frequently happens, that by the time the hæmorrhage has ceased, such a degree of collapse is produced, as to require not only the application of artificial warmth to the extremities, but even the cautious use of stimuli, to rouse the heart and arteries to a proper degree of action.' During all this the greatest quiet, both of body and mind, should be enjoined; the air of the apartment must be kept as cool as possible, and no other person allowed to be present but those who are absolutely necessary to attend upon the patient. Where great exhaustion has been already produced, and the discharge still continues, or threatens to return, we must not delay any longer to plug the vagina, which may be done with a soft piece of sponge, as already directed, wrung out of vinegar, or any of the other cold liquids above named. The sponge plug is preferable to any other, and may be retained for hours without any uneasiness; the blood circulates through its numerous cells, which being moistened with vinegar, causes it to coagulate very rapidly, and entangles the febrine so effectually, as to form a firm tough coagulum, and therefore a precise imitation of the means nature makes use of for stopping hæmorrhage. After some hours, say twelve, the plug (to which, bye the by, there should be a cord passed through the middle so as to hang down outside) should be cautiously removed, and the vagina washed out with a solution of alum, sugar of lead, in cold water, or in infusion of roses, with a syringe, to dislodge any coagula of blood that may be present, and which, by their becoming putrid, are apt to cause much irritation; if the flooding return the plug must be again applied.

When the flooding is of long duration, and becomes constitutional, the indications are the same, but preparatory measures should, in this case, be adopted a long time previous, in order to prepare the system to dispense with this unnatural evacuation by degrees. We must endeavour for months to modify the constitution of the patient, by bringing into play every hygienic resource, exercise, diet sometimes tonic and substantial, at others vegetable and scanty, fare depending on the state and constitution of the patient; drinks sometimes emoluent and sometimes astringent, and particularly from time to time general bleedings; and, above all, kind, affectionate,and encouraging attentions. Few diseases tend so much as this to depress the spirits of a female; for by its long continuance, a train of the most distressing feelings and symptoms are induced. Intense headache, accompanied with *tinnitus aurium* (or imaginary sounds, heard and excited within the ear), and occasional loss of vision; the nights passed in a restless and wakeful state, or in unrefreshing slumbers, and frightful dreams, occasionally amounting almost to delirium, and extorting such declarations of misery as, 'If this goes on I shall lose my senses;' and this depressed state of mind re-acts upon the disease most unfavourably, so that a sudden appearance of the discharge is often preceded by low spirits, melancholy, and a flood of tears. It is therefore necessary, that in addition to the other means, soothing treatment is indispensable. Indeed, by the aid of such general means as we specified, the hæmorrhage will often diminish by de-

grees, first in intensity and afterwards in frequency, and we shall then arrive at the possibility of arresting it altogether without danger. In these passive, long continued, and as they are sometimes called chronic cases of flooding, the powers of the system are in general, indeed, almost always already too much weakened by the loss it has sustained to bear any farther depletion, and, when occasional, general bleedings, it is only to be understood in these cases where considerable plethora and fullness may yet exist; but these bleedings, and the application of cold, must be applied with much greater caution than in the preceding case of active flooding. The bowels should be kept open by enemas of castor oil, or melted fresh butter, and sulphate of magnesia, or common salt, administered every second or third day: but purgatives introduced into the stomach should be avoided as much as possible. The following will be found not only a useful but an agreeable medicine:—Dried red rose leaves, six drams, boiled water, two pints; macerate for one hour, and strain, and to the strained infusion add two ounces of refined sugar. Then dissolve two scruples of sulphate of quinine in two drams of aromatic elixir of vitriol, and add it to the sweetened infusion. A small wine glassful may be taken three times a day. If an infusion of roses is made in the same way, allowing one ounce and a half of the leaves to a quart of boiling water, and two drams of alum and a gill of vinegar added to the infusion, it will form a convenient injection; a portion, say two ounces, of which should be injected into the vagina night and morning. Or the decoction of oak bark, or of the roots of the common bramble, may likewise be used as an injection; or a solution of sugar of lead, or sulphate of zinc, in equal parts of rose and common water, may be employed.

In the use of internal medicine our treatment must no doubt be guided by the nature of the case. Dr Davies and others recommend the acetate, or sugar of lead, internally, in preference to every other medicine, even in those active and violent cases where the decided means we have been recommending are adopted. 'We know,' says Dr Davies, 'that the acetate of lead sometimes produces the most decided effects, let the mode of doing so be what it may; in many instances it seems to exercise a control over the bleeding vessels as prompt as the ergot does over the uterine fibre.' And in confirmation of this, Dr Rigby affirms, that 'combined with opium it stands far above all other astringents; and he moreover says, that in spite of the prejudice manifested against the internal exhibition of the acetate of lead, on account of its poisonous qualities, it has been given in large and repeated doses without any ill effects, and with the happiest results.' Now all this we do not question, neither have we any prejudices against employing it in violent cases of flooding, in the form of pill, in half grain doses, with the same quantity of opium every four or five hours, but we say it is not a medicine, valuable as it is, to be trifled with internally in the practice of domestic medicine. Nitrate of potass or saltpetre, as it is called in commercial phrase, or in other words, nitre, is much employed in active menorrhagia, and a valuable medicine it is. In those cases which do not admit of the use of cold applications, and yet partake somewhat of an active character, it may be used in the form of mixture, dissolved in almond emulsion. One dram may be dissolved in a pint of emulsion, and two ounces of the mixture taken every three or four hours, or ten grains may be taken in a spoonful of currant jelly, three times a-day. Dr Locock observes, that 'the next return of the menstruation may be rendered comparatively trifling by the use of a full purgative, about twenty-four hours before the period when that can be ascertained, avoiding every medicine of a drastic stimulating quality.' When this direction is followed—and we have sometimes seen it prove useful, and never do any harm—the best purgative that can be employed, is to dissolve one ounce of Epsom salts in six ounces of the infusion of roses, and the same proportion of elixir of vitriol, without either the sugar or the quinine, and take one-third of the mixture every three hours. In the intervals, however, we advise a proper regulation of diet, and the use of the quinine and infusion as already directed, keeping the bowels in due order rather by mild oily enemas, than by any medicine introduced into the stomach. Sponging the skin with equal parts of water and vinegar, and afterwards drying it with a clean, but rather rough towel, every time the under dress is changed, is an excellent curative measure; and while riding on horseback, or in a carriage over a rough road, should be avoided, still moderate exercise in the open air should be regularly employed.

If, when there is flooding, there exists some organic affection, the same means may be employed to moderate the abundance of the discharge, by the general rules already given, but carefully avoid such local remedies and powerful astringents as would suppress it all at once.

With respect to those floodings combined with incurable disease of the uterus, in these cases the hæmorrhage, unless it be excessive, becomes beneficial to the patient, by diminishing the engorgement and mitigating the excruciating pains. But these diseases will be shortly noticed under the article *Womb, Diseases of;* and indeed they are not all subjects for the application of domestic medical means, although some useful hints for the management of the sufferers may be suggested.

MENSES, or MENSTRUATION. This

female function is sometimes called the *monthly discharge*, at others the *courses*, and was once more generally denominated the *flowers*. It consists in a monthly discharge of blood or coloured fluid from the uterus or womb of every healthy woman who is not pregnant, or who does not give suck, from the time of puberty to the approach of old age. Or, in the language of Mr Abernethy, a monthly discharge takes place from the uterine cavity; it is of a nutritious quality, resembling blood, and from its quantity, languor and weakness are induced whenever it occurs. Some women never menstruate, and others, as we have stated in our article *Lactation*, continue to do so while they give suck, while others even menstruate during pregnancy, some few in early childhood, and others in old age; but Dr Denman is of opinion that such discharges may, with more propriety, be called morbid or symptomatic; and therefore our definition may be considered correct, with such exceptions, and some few others which it is unnecessary to notice under this head. Why nature should have doomed the human female to the periodical loss of so much nutriment and proportionate power, is a problem that can only be solved by supposing that it relieves uterine irritation, and mitigates the extreme of sexual desire; thus enabling her to conform to the laws of morality, and the social compacts which are established between the sexes.

At whatever time of life this discharge comes on, a woman is said to be at puberty; though of this state it is a consequence, and not a cause. Its first appearance is accompanied by a train of changes, both in the physical, as well as in the moral constitution of a young female; she loses the childish playfulness of a girl for the retiring modesty of a young woman; the expression of her eyes, the face, the very movements of her body are altered; amusements which before had been her delight, now afford her little pleasure; her tastes are changed; she usually takes at this time a rapid start in her growth, her limbs become more rounded and fully formed, her breasts more developed; she is no longer a child, she has become a woman, has woman's feelings, and is capable of impregnation.

The early or late appearance of the menses may depend upon the climate, the constitution, the delicacy or hardness of living, and sometimes, in a considerable degree, upon the manners of those with whom young females associate. Indeed, the varieties to which this function is subject are almost endless; in some females it will make its first appearance as early as the tenth year, and, in some instances, not till after the twentieth, or even twenty-third. In some it will cease at the age of forty, while in others it will continue to appear regularly till beyond fifty; and it is no uncommon thing in the Highlands of Scotland, and in some parts of Ireland, to see women bearing children, and healthy and vigorous at this age, and even beyond it. Again, in one woman it will appear every three weeks, or even oftener, in another only once in six weeks; the duration of the discharge in one case will be but two days, whereas in another it will extend to ten days; one woman will lose one or two ounces, while others will discharge a pound, or even more; and yet all these varieties are seen within the limits of health. These varieties depend, as we have already observed, in a great measure, upon climate and other causes; in hot countries the menses appear earlier, and are much more profuse, they also disappear much earlier; whereas in the northern regions of Lapland it takes place but two or three times in the year, chiefly during the summer, and then in small quantity. In Greece, girls begin to menstruate at eight, nine, and ten years of age; but advancing to the northern climes there is a gradual protraction of the time till we come to Lapland. A negress girl is already the mother of two or more children before her European or British sister has begun to menstruate, and is, in fact, become an old woman, or on the verge of old age, before even some of the females in the Highlands of Scotland are capable of being mothers.

In these kingdoms girls begin to menstruate from the fourteenth to the eighteenth year of their age, and sometimes, as observed of the Highlanders and Irish, at a later period, without any signs of disease; but if they are luxuriously educated, sleeping upon down beds, and sitting in hot rooms, menstruation usually commences earlier. Generally, however, fourteen or fifteen may be reckoned the average period of commencement, and from the forty-fourth to the forty-sixth that of the cessation; the discharge returns every four weeks, lasting from three to six days, the quantity varying from five to eight ounces. Constitution and mode of life have also a considerable effect on this secretion; the delicate luxurious female of rank accustomed to late hours, little exercise, rich food, and the softest couch, menstruates much more profusely, and for a longer period, than the hardy robust peasant girl. Cases have been recorded of an extraordinary early appearance of the menses, viz. in children shortly after birth, or at a very early age, where the breasts and external parts of generation were as fully developed as in a girl of eighteen; and, as remarked in the commencement of this paper, other cases have been recorded of women continuing to menstruate to a very advanced period of life; but on the consideration of cases of this description it is not our province here to enter.

'That the discharge,' says Dr Rigby, 'is a secretion from the uterine arteries, the capillary

extremities of which open into the cavity of the uterus, has been repeatedly proved by examining the uterus of a woman who has died during menstruation; and also in cases of eversion of the uterus, where the discharge has been distinctly perceived oozing from the minute orifices in the lining membrane of the uterus.' It appears, also, evidently intended to act as a periodical evacuation to the system, because where this discharge has been suppressed, much derangement of health is the result; the leading symptoms of which are generally those of congestion to the head, and not unfrequently we observe nature to make a periodical attempt to relieve herself by a discharge of bloody fluid from the eyes, ears, nostrils, gums, œsophagus, stomach, intestines, bladder, breasts, skin, &c. and also through wounds and ulcers; in such cases, the discharge has all the characters of the menstrual fluid, and will return as regularly as the menstruation which has come from the uterus.

An opinion has long obtained, probably derived from the Jewish legislator, afterwards adopted by the Arabian physicians, and credited in other countries, that the menstruous blood possessed some peculiar malignant properties. The severe regulations which have been made in some countries for the conduct of women at the time of menstruation, the expression used in Isaiah, chap. xxx., and in Ezekiel, the disposal of the blood discharged, or of any thing contaminated with it, the complaints of women attributed to its retention, and the effects enumerated by grave writers, indicate the most dreadful but unfounded apprehensions of its baneful influence. The running to heat of animals is very different to menstruation; in them the discharge proceeds chiefly from the vagina, whereas in the human female it comes from the uterus or womb, and instead of the venereal passion being excited by this condition of the female, as is the case with animals, the human male feels a repugnance towards a woman who is menstruating; this feeling, implanted for the wisest purposes, explains the prevalence of the belief which has existed in every country from the earliest times, viz. that a woman is unclean during menstruation. Hence has arisen the superstitious notions that her near approach is injurious to every living thing, that the silk-worms will die, that the fresh blossoms will not set, the corn will be spoiled, the beer will not ferment, and milk become sour, and other equally absurd and ridiculous notions. These, however, are not the result of refinement in manners and civilization, but are rather to be attributed to instinct, as proved from the fact that in the most uncivilized and dirty nations, viz. the Hottentots and Negroes, &c. the women are obliged to leave the community when about to menstruate, and pass this period in solitude and separation. Under peculiar circumstances of health, or states of the uterus, or in hot climates, if the evacuation be slowly made, the menstruous blood may become more acrimonious or offensive than the common mass, or any other secretion from it; but in this country and age no malignity is suspected, the menstruous woman mixes in society as at all other times, and there is no reason for thinking otherwise than that this discharge is of the most inoffensive nature.

Menstruation is indeed a function peculiar to the human female, and the capability of walking would appear to contribute somewhat to produce this discharge; for we find, says Burdach, that those apes, whose movements nearly resemble those of man, have a much greater discharge during the period of their running to heat than any other animal. On account of the uterus in animals being neither so thick, so spongy, or so vascular, from which reason they do not menstruate, they are neither liable to such hæmorrhages when the placenta is detached, nor to such frequent premature expulsion of the ovum as the human female.

Two or three years, indeed for a considerable period before puberty, visible and important changes begin to manifest themselves in the girl of from ten to twelve years of age. Headache, a hard turned abdomen, nervous and sometimes even convulsive symptoms, and not unfrequently cutaneous eruptions, make their appearance about this period. The ordinary means employed to relieve these fail, and then the conclusion that the occurrence of the menses, and that alone, will remove unpleasant affections, forces itself, not only on the mind of the medical attendant, but likewise on that of the mother, who well knows how important a period of life her child is approaching. As the period draws near, the system becomes more irritable, there is a general uneasiness, and alteration of the moral character. There is also, very commonly, much languor, flushing, sensation of fullness, headache, livid marks round the eyes, disordered appetite, impaired digestion, and disturbed or unnatural heavy sleep; these symptoms continue for a longer or a shorter period, and immediately preceding the first appearance of the discharge there is much pain and weight, with fullness in the head and pelvis, with throbbing or swelling of the mammæ or breasts. Although the actual discharge is rarely quite regular to the month for the first half year or so, yet the usual constitutional symptoms, just enumerated as directly preceding the discharge, are found to observe the lunar or monthly intervals, and to be aggravated monthly, even for some time before the flow of the menstrual evacuation itself; with many, the symptoms above-mentioned are either so slight or so tem-

porary that no great attention is paid to them. Indeed, there are girls that the commencement of this evacuation scarcely ever occasions an hour's sickness, or even the slightest deviation from ordinary health; yet with some the discharge will take place once, or it may be twice, and then disappear for six months or longer. M. Lisfranc, whose situation as principal surgeon of the hospital *La Pitié* of Paris gave him many opportunities of treating female complaints, has some very pertinent remarks and observations on this subject, that may not only prove useful to mothers and their daughters, but to midwives and young practitioners. 'It is generally believed,' says Lisfranc, 'that before the epoch at which menstruation ordinarily commences, the uterus or womb is exempt from all morbid collections, an error which it is very important to abolish. M. Carron du Villards has related a case of polypus situated in the cavity of the uterus, with engorgement of this organ in a child seven years of age. There are a number of women, advanced in age, who can trace back the commencement of the symptoms to their childhood. Again, I was consulted by a lady, whose health before the period of puberty began to decline; she complained of pains in the loins, a constant sense of weight, accompanied with pains within the pelvis, suspected to have been gastro-enteritis. I feared the cause, on the contrary, was very different. I examined the womb, which revealed to me at once a sub-inflammatory engorgement of this organ. I treated it accordingly; the patient soon became much better, and is now looking forward to a perfect recovery.'

Theory alone would have induced us to presume that which the facts in this case have confirmed. The menses do not make their appearance all at once, the blood flows for a long time previously towards the uterine organ. If it encounters any obstacle to its return, (and we know what difficulties this evacuation experiences in establishing itself,) this monthly determination towards the uterus, will it not occasionally terminate in engorgement of this viscus? It is to this cause we must attribute the lumbar pains, the sense of weight within the pelvis, of which young girls complain under these circumstances, and subsequently paleness, swelling of the lower extremities, want of appetite, weakness, sensations of suffocation, with palpitations, which medical men frequently consider to be aneurism, and even sometimes a thing still more vague, disease of the heart. Besides, what renders the diagnosis more obscure is, that at the commencement of the affection the patient suffers less than at a more advanced period, and mistaken modesty prevents her, especially at that age, to express clearly all the symptoms she experiences.

Mothers, therefore, and those having the charge of young females at this important period of life, will see how important it is for the prevention of uterine affections, or diseases of the generative system, to establish, if possible, menstruation in girls arrived at the age of puberty. We do not now allude to those who are healthful and strong, for in them nature is sufficient to produce the new functional formation of this organ. But, should the girl be in a delicate state of health at the commencement of this epoch, it is necessary to allow her a very nourishing diet, give her slight tonics, use cold and shower baths, beginning with the water at blood heat, and reducing it to the ordinary temperature, combined with exercise in the open air, and, if she is competent, exercise especially on horseback. It is in these cases especially that local remedies may be employed with advantage, such as frequently bathing the feet, allowing such a quantity of water that the legs of the patient may be immersed as far as the knees, for when the feet only are covered, they are more frequently injurious than useful, and in this case the nitro-muriatic acid bath may be employed with advantage. The bowels should be kept open by fœtid and stimulating enemas, half a pint of a decoction of rue, wormwood or mugwort, strained while hot, and one dram of asafœtida, and the same quantity of aloes, dissolved in the hot decoction may, when strained, and of a proper temperature, be administered every other night at bed-time. The mother, or a confidential female friend, should inquire whether the patient feels anything like the symptoms of the appearance of the discharge, as remedies used at these periods have a much more powerful effect; indeed, except general treatment, there is no other time at which more direct means will have any effect. Lisfranc recommends that the foot-baths be impregnated with the flour of mustard, or else with a decoction of mugwort or wormwood, and enemas of a warm temperature, and like injections for the vagina, emollient local baths, warm cataplasms, such as the mustard sinapism, applied round the pelvis, dry cupping, frequent blisters, the application of a few leeches to the ankles, legs, or superior and internal parts of the thighs, small bleedings from the feet, &c. We are, however, convinced from a pretty extensive experience in cases of this description, that moderate out-door exercise, diverting the mind by a change of scene, and a course of moral and intellectual discipline suited to the disposition of the patient, in conjunction with warm fœtid enemas, such as already described; or if the smell is disagreeable, the aloes may be dissolved in a decoction of rue, pennyroyal, or wormwood, without the asafœtida; and two or three of the pills of sulphate of iron and myrrh, &c. or Griffith's mixture, in a solid form, taken every second night.

If, on the contrary, symptoms of uterine congestion manifest themselves in a young woman, whose appearance indicates a strong constitution, these topical remedies will only augment them. It is necessary then, in such a case, to have recourse to the warm bath twice a week, a vegetable diet, or farinaceous with milk, moderate exercise without fatigue, and lastly, bleeding from the arm, occasionally to the extent of from eight to twelve ounces.

The choice of local means is far from being indifferent, for nothing is more fantastical and capricious than the menstrual function, for it is excited by foot baths in some women, while in others they suppress it. The application of warmth, exercise either on horseback or in a carriage, and a multitude of other remedies, will at times be beneficial, depending on the different states of the individuals as to the effect these produce. Indeed, there appears to be in every female a peculiar idiosyncrasy adapted to the performance of this function, which it is necessary to examine and regard with cautiousness in those women who have already menstruated; and in those who have not yet experienced this, the mother, or other female adviser, or even professional medical attendant, must be somewhat reserved in the application of remedies, carefully watching the operations of nature, and the peculiarities of the individual. This is the more necessary, seeing that one female enjoys good health in whom the menses only appear scantly every five or six weeks, and another does the same in which they appear every three weeks, and in greater quantity.

The diseases, or those deviations from health to which this function is liable, will be found under the divisions *Amenorrhœa,* or retention and suppression of the menses; *Fluor Albus,* or *Leuchorrhœa,* or diseased state of the matter discharged, sometimes called the *Whites; Menorrhagia*, or profuse menstruation, sometimes called *Flooding;* whilst *Dysmenorrhœa*, or painful and difficult menstruation; and *Cessation of the Menses*, likewise denominated the *Turn of Life*, which will be found in the immediately subsequent article. We shall, however, conclude this section by shortly alluding to those cases in which the menstrual discharge never appears.

The *absence of menstruation* has been attributed to various causes, but the occurrence of such cases are more frequent than is generally imagined, modified, indeed, and varied according to the temperaments of the individuals. At every return of the menstrual period, the patients become susceptible, irritated, and melancholy, frequently affected with headache, suffocations, a sense of weight about the pelvic organs, colic, &c. without ever having the slightest appearance of the menses. There are others, again, who never experience these periodical indispositions; but, in general, these are women who have very delicate health, are of a more or less emaciated tissue, lax, flaccid, and colourless, their sallow hue announcing the affection, and sometimes they are harassed with colicky pains and diarrhœa, sometimes with palpitations, headache, and other nervous affections. Such cases require the most skilful and persevering treatment, and patients of this description should place themselves under an experienced physician, well acquainted with female complaints. Cures have been made, and females so situated should not be given up, and their case considered as hopeless, till every mean has been tried. This total non-appearance of the menses is allied to their periodical suppression when it continues for a time more or less considerable. There are cases on record in which women have only menstruated once in every fourth or six month, and even only every third, fourth, or sixth year, suffering sometimes very severely. The indication is then the same as for those who have never menstruated, at other times they enjoy apparently perfect health. This deceitful calm may, however, only serve to disguise some more serious disease, that will make its appearance at a later period, such as disease of the heart, or some chronic pulmonary affection. 'I knew,' says Lisfranc, 'three young married women who never became pregnant, and who menstruated only at protracted periods. One died at the age of twenty-one, from aneurism of the heart, another at nineteen, and the third at twenty-four, from tubercular pulmonary phthisis. Consequently,' he adds, 'I think it necessary to take from time to time small quantities of blood from the arm, and prescribe an appropriate diet. I have adopted this plan in a woman thirty-six years of age, who for the last six years has not menstruated, and is going on well under this precaution.' In such cases, however, we recommend to all who have it in their power to take the best advice they can procure.

There is another deviation from the ordinary course of this function which requires to be noticed, viz. *the non-appearance of the menstrual discharge from imperforate vagina.* A regular secretion of the menses may have taken place for some time, but still no appearance of the fluid has been visible. The young sufferer, however, feels pain in the back, loins, a sense of bearing down, the abdomen gets larger every month, she appears pale, languid, and dejected, and sometimes the tongue of scandal adds to her grief, reporting that she is about to become a mother, before she has any legal right to be so. Bye and bye she suffers from retention of urine, and even the fæces cannot be passed without difficulty. The countenance becomes very pale, and there is an occasional hectic flush;

solitude is sought, and the spirits greatly depressed, and vertigo, headache, and sleepless nights are her portion, while the anxious parent scarcely knows what to do, or what to say to inquirers respecting her case. In such cases a skilful surgeon should be sent for, who will immediately discover by an examination per vaginam, that the *vagina is imperforate*, and that there is no room for the menstrual fluid to escape; and happily for the sufferer, if she has not been too long neglected, a very simple and easy operation will afford relief. (See *Vagina.*) The *menses are likewise occasionally suppressed* from cold, wet, and many such little occurrences. The use of the foot bath, and the other means employed in difficult menstruation, will relieve this. In plethoric habits, bloodletting and diaphoretics may be necessary, such as the tincture of guiacum, in doses of a teaspoonful at bed-time, if the volatile tincture is employed, and two tea-spoonfuls if the simple; it may be taken in a cup of hot mint tea.

MENSES, Cessation of, or TURN OF LIFE. This period, which is familiarly denominated among the lower classes of society *the turn of life*, and by the more refined and learned the later or climacteric crisis of female life. So much importance has been attached to this period, that it has been made a subject for grave calculation among the directors of Life Insurance companies, as to bearings on the comparative mortality of the sexes at different periods of life. It is a pretty general opinion that the function of menstruation exposes its subjects at certain marked periods of their lives to considerable changes and modifications of sexual attributes, and that these changes are often competent very seriously to affect the health of women, if not even to determine the value of female life. The stages in the currency of women's lives thus indicated are principally those of puberty, when the function is first established, and of the climacteric or critical age, when it is usual for it to cease and determine. It is, however, only with the latter period that we have now to do; and therefore passing over the period of puberty, we shall shortly advert to the statements of Professor Davis of the London University, who has published by far the most sensible paper that has yet appeared on the subject in the English language.

'As to the influence,' says Dr D., 'of the later or climacteric crisis on the life of the human female, there appears to prevail a still more general impression than in the former case, that it involves a period of great danger to the lives of its subjects. It is, no doubt, an interesting fact, that nature at this season has to perform an important work for the ultimate benefit of the sex, and we know that a period of several months is generally occupied in its performance. If we duly consider the actual amount and variety of the concurrent circumstances which usually combine to effect the required object, e. g. the reduced diameter and change of action which must take place in many hundreds, perhaps in thousands of living tubes, the congestive accumulations of infiltrating fluids which might be naturally expected to press very inconveniently upon organs and tissues contiguous to the uterus; numerous reaction of distant parts consequent upon the impeded momentum of the currents of blood heretofore transmitted to the menstruating viscus; the required subduction of endless trains of associated actions, connected by habit, community of structure, or functional sympathy with the organ now about to be deprived for ever of one of its principal attributes; the natural tendency of the whole to a plethora of the whole vascular system, or of that of important individual organs in consequence of so considerable an evacuation as that of menstruation being more or less suddenly suppressed; and, finally, the immense force of pressure made upon the vessels proximately concerned in the function sometimes sufficient to produce alarming lesions of structure and profuse irregular hemorrhages; if we duly consider all these circumstances, and many more might be added, can it seem unreasonable to expect that an epoch in the life of women, rendered thus remarkable by the concurrence of so many clashing elements, should be one at least of temporary disturbance and of partial storms? Such, in fact, is frequently and pretty generally the case. Sometimes a period even of several months is unavoidably taken up in adjusting differences, and to metaphorise the parts in accommodating and neutralizing the *errores locorum*, and the disturbed movements of the system to their new relations. Thus, indeed, a crisis in the female constitution does take place on the retirement of the function of menstruation, which often proves of sufficient consequence to create great interest, and occasionally to excite much temporary alarm. Eventually, however, in most cases, this work of nature, being carefully elaborated, and the means being well accommodated to the ends, is completed agreeably to her own intentions, conservatively of the best interests of the individual. The physical character of the individual undergoes its destined change, but by the change the remaining interests and pleasures of life are rendered more uniform and durable. The principal questions, then, for our consideration in this place are, whether, and on what scale of proportion, women sustain an eventual detriment either to health or life from the accession of their climacteric or second constitutional crisis? It is much to be regretted that adequate materials for finally determining these points do not actually exist.

If we might appeal to the vague impression of medical men, partly derived from reading, and partly from the uncertain recollection of results of cases, we should certainly come speedily to the conclusion that the period in question is one of great danger to female life. Incident to the changes then to be sustained, some considerable disturbances, as we have just seen, are to be expected to take place, and when fatal or dangerous diseases happen to make their first appearance, or to become established in the system about the same period, it must be acknowledged that many of them are observed to be of a sexual character, and to depend upon lesions of one or more of the sexual organs. After making this almost unnecessary concession, it still remains to be proved that women are liable to a greater rate of mortality at this period of their lives than the other sex at a corresponding age, or that they are themselves subject to a heavier average of mortality at the time of cessation of the menses than at any other period, whether within a few years anteriorly or subsequently to that epoch. The best documentary evidence which is accessible to us on this subject is to be found, as in the other case (viz. puberty), in the excellent reports of Mr Finlaison.' Dr Davis here refers to 'Finlaison's Report on the Evidence and Elementary Facts on which the Tables to Life Annuities are founded,' and concludes by recommending the former register to be kept for ascertaining the facts of the case more correctly. Mr Finlaison's tables demonstrate that, except under the age of twelve, and above the age of eighty-five, extreme periods in which perhaps no distinction of mortality is apparent, there is at every other period of life a remarkable and decided advantage in favour of the female. This is first most evident about fourteen, after which the mortality among the female sex is observed to proceed onwards to the age of fifty-five with the slightest imaginable increase, contrary to many received notions that child-bearing and nursing entail on this sex a severe mortality in early life, and that in the earlier stages of the decline of life they are also subject to many casualties, all which is utterly disproved by the fact. It is not true, but quite the contrary, therefore, that married women incur greater danger than the single; and reasonably may this conclusion be admitted, when it is considered that the married are, in the first instance, in regard to health and strength of constitution the *elite* of the whole sex, the unhealthy not choosing to marry. After sixty the female mortality advances more rapidly; but is always, until the age of eighty at least, very decidedly less than that of the males.

Our female friends, notwithstanding the peculiarities of their sex, have great cause to congratulate themselves on the happy, and even enviable circumstances in which they are placed; and so convinced are the directors of at least one Life Insurance office (the Eagle) of the truth of these statements, that they have introduced a considerable difference on the purchase-price of their policies in favour of the supposed greater average value of female life. Having administered this dose of comfort, let us consider the matter in a more strictly medical point of view. In these kingdoms, except in the most northerly parts, the cessation of the menses, as stated in the preceding article, occurs generally between the age of forty and fifty; these cyphers are said to represent the two extremes; we have seen a case in which it terminated at the age of thirty-six, and Lisfranc says that he has frequently known it to terminate at thirty-five, and that in the case of one woman who never menstruated after fourteen; and that at the time of his writing he had three female friends, of fifty-four, fifty-six, and sixty-four, who are still menstruating, they all being of an ordinary temperament, and enjoying good health. Happily, as illustrated by Dr Davis in a rather too technical style for our work, but in a clear and lucid manner, it is satisfactorily proved that in the majority of females the menstrual cessation is announced many months, and in other cases some years previously by some derangement in the secretion, it being sometimes more, at other times less abundant, or returns only at irregular periods. Thus, by degrees, the uterus modifies itself, till at length it does not any longer admit a free exit to this discharge; still, however in some cases, and for some time, the blood every month flows as customary to the uterine organs, constituting one of the principal causes of congestion. In some women, however, uterine congestion commences earlier, while in others there is no symptom of its existence, or even of a tendency thereto till the critical epoch or cessation of the discharge. A popular French writer observes that 'in many instances the venereal orgasm is experienced for the first time with violence, and in these cases, nineteen times in twenty, the irritation of the womb must be considered as the cause.' Females residing in the country, or engaged in active occupations, are less liable to this irritable state of the uterus; exercise producing a greater determination to the skin, and the perspirable evacuation being more free and abundant. In towns, however, and among the more sedentary, these symptoms are more manifest, and there are pains, indeterminate flushes, nervous affections, headaches, palpitations, leuchorrhea, and frequent floodings attendant on the cessation. These symptoms are to be subdued without delay. Small quantities of blood should be taken from the arm in order to divert its flow

to the uterus, the warm bath should be frequently employed, and, if restless and irritable, the enema we recommended in difficult and painful menstruation, consisting of twenty drops of each of the tinctures of henbane, hemlock, and foxglove, and thirty of laudanum, in a gill of linseed tea, or even common tea, should be cautiously administered at bed-time. This will procure rest, and take off the irritation. An injection of thin barley water or linseed tea may be also thrown up the vagina, or a decoction of poppy heads; and the bowels, if costive, may be kept open by mild laxatives, avoiding everything of a drastic nature. The infusion of roses and Epsom salts is the best laxative that can be employed. The patient should sleep alone for some time, and if the season of the year, and other circumstances favour, go to Cheltenham, Pitcaithley, or Airthrey springs. If the discharge should assume the form of a flooding, it must be treated as we have recommended in the article *Menorrhagia*. The treatment, however, is seldom required of that active kind recommended in violent flooding. Finally, the mind should be soothed and kept cheerful by assuring the patient that there is little or no danger in the case, and the reading the preceding quotations from Dr Davis and Mr Finlaison on the chances in her favour will doubtless keep up the spirits, and tend to inspire the patient with hope. See the preceding, also the next article.

MENSTRUATION, Painful. This is one of those deviations from the healthy action of the functions of menstruation, and to those who are afflicted with it, a most painful and harassing one it is. It is a constant attendant, in a greater or less degree, in some women from the commencement of the function, at the age of puberty, to the termination at the turn of life. Indeed there are many women who signalise the periodical return by insufferable pains, which come on some hours previous to, and continue some hours after the menstrual appearance; sometimes, however, only during the period of the discharge, but again they will sometimes continue two or three days after its termination. Thus the time at which the pain comes on varies in different cases; we have known it precede the discharge for twelve hours, recurring at intervals not unlike the pains of labour, with a strong bearing down, and immediately as the discharge made its appearance the pain ceased, leaving the patient, however, in a state of lassitude and debility. In others, however, where the flow of the menstrual fluid is less profuse, grinding pains, unless means are taken to relieve them, continue to harass the patient for two or three days, or until the discharge ceases. Dr Dewees presents us with a faithful and graphic description of painful cases of this affection. 'The suffering at the menstrual period is severe, sometimes beyond description; it resembles in intensity the pains of labour (as already observed), or of abortion, properly so called, for to either case it may be said to have a strong analogy. It usually commences by a slight menstruous discharge, which is pretty suddenly arrested. Pain now almost instantly ensues, and this is described by women as being a forcible bearing down kind, returning at longer or shorter intervals, until a membranous substance, or small coagula, are discharged. If it be a membranous substance, it will be found of unequal size, sometimes small, at other times large, and sometimes it resembles the cavity from which it is expelled; at other times it will be broken into many fragments. After the expulsion of this substance the woman enjoys ease, unless there be a fresh production, in which case it requires for its expulsion fresh contractile exertions of the uterus. The quantity discharged is very various; sometimes it is small and at other times very abundant; sometimes a portion not much larger than the nail of the finger, and again as much as would fill a large tumbler. The period employed for the expulsion of this substance is also various; sometimes requiring but a few hours, at other times several days. The degree of suffering is not always in proportion to the substance expelled; indeed the pain would rather appear to be less when much is discharged, which is perhaps not difficult of explanation.' Lisfranc considers 'that almost always these menstrual pains are hereditary, and by questioning those women who labour under this affection, they will in general tell you that there have been many in the family who have suffered previously in the same way, and have died from disease of the uterine organ.' In the interval of the menstrual periods, it will be easy for a professional man, or a well educated midwife, to discover, by proper examinations, if the neck, but more frequently, if the body of the uterus is engorged, increased in volume, and in a state of sub-inflammation; but indeed this is always sure to be the case when the patient runs through that course of suffering above described, and discharges the membranous substances and coagula Dr Dewees has so well described. Bloodletting from the arm, a vegetable diet, moderate exercise, may then be employed, and the warm bath. The following enema should be employed as soon as the very symptoms of the menstrual approach is felt:—

Of the Tinctures of Henbane, Hemlock, Digitalis, and Opium, each twenty drops.
Extract of Belladona, ten grains.
Boiling Water, four ounces (one gill).
Dissolve or infuse the extract in the hot water, and when of a proper temperature, strain it through a linen or cotton cloth, and add the tinctures.

This is to be cautiously thrown up the rectum, and the patient enjoined to be quiet in bed, and resist as much as possible every inclination to discharge it. If it is retained for an hour most

of it will be absorbed, and the patient will feel relieved. In this state she should then be placed in a warm bath for fifteen minutes, and the body dried with considerable friction, and be immediately put to bed again, and allowed to repose. This treatment has been found to afford relief when other means of a very active description had been tried in vain; and in very severe cases we have caused two drams of laudanum, and the same quantity of the compound soap liniment, to be well rubbed on the loins, previous to the administration of the enema, and when this was not done, increased the quantity of tincture of opium in the enema to forty drops, making no addition, however, to the other ingredients. Drs Locock, Rigby, and others, remark, that this kind of difficult menstruation will sometimes exist at the age of puberty, and cease upon marriage; in other instances the first attack is immediately after marriage, and lasts till the patient becomes pregnant, whilst this disposition to dysmenorrhea exists. This, however, is far from being correct; the error arising from the fact, that such patients are peculiarly liable to abortion at a very early period, which abortions have been supposed to be merely unusually aggravated attacks of the complaint; nor again, as has generally been considered, is pregnancy a cure for previously existing difficult menstruation, unless by great care and management. The first two or three months are safely passed over. No means within our knowledge is so effectual in such cases as enjoining rest (see *Abortion*), and the frequent use of the enema we have just described, which seldom fails of allaying the uterine irritation. Indeed there is no doubt that extreme irritability of the uterus is the immediate cause of this distressing disease, and that this irritability, as judiciously remarked by Dr Locock, 'is but a step removed from inflammation,' and that blood-letting, to the extent of from eight to twelve, or even fourteen ounces, from the arm, in conjunction with the enema, will most readily avert its effects. Although it is extremely probable, that when a membrane, or stringy substance, has been expelled during menstruation, that inflammation had existed and may be even farther excited in the denuded surface, it does not follow as a certainty that the small coagula, and other discharges already described as characterising the menstrual discharge in cases of this disease, are always the result of inflammatory action.

From a conviction that this disease, or in other words, the difficult menstruation, is in by far the greater majority of cases nervous, we have recommended a plan of treatment, even in the inflammatory kind, that cannot possibly aggravate, and will even alleviate the disease, on the supposition that the pain and difficulty arises from a nervous and not an inflammatory action. The nervous may be distinguished from the inflammatory even by the appearance and constitutional characteristics of the individual, without any per-vaginal professional examination (a measure always painful to a modest and diffident female, and which, while it is often on this account dispensed with in cases where it is required, is by some practitioners employed without any unnecessary call; and a foreign professional education in obstetrics has created this habit in some young practitioners, but it is one we would advise them to relinquish without delay while they continue to practise in this kingdom), as the purely nervous is indicated by the globus hystericus (see *Hysteria*), and the patient experiences spasms, and evinces great nervous excitement and irritability. The pulse is small, contracted, and vibrating; there is subsultus tendinum, or starting of the tendons, in Scotland sometimes called leaping of the veins; and indeed the whole frame starts at the slightest emotion. Two or three days then before the menstrual epoch every mean, mental, moral, and physical, should be employed to lessen this nervous state of irritability. In conjunction with soothing and affectionate attentions, the shower bath or plunge bath may be employed, and an enema administered at bed-time, of one dram of the tincture of asafœtida, and forty drops of laudanum, in a gill of strong tea, to be retained if possible, and indeed warm enemas of strong tea, occasionally without an opiate, for opiates should never be administered during the day if it can be avoided, and therefore we prefer an enema of a strong infusion of valerian root, or tea, during the day, and reserving the opiate till bed-time. There are some cases in which one combination of an opiate will procure relief, and in others the same combination will aggravate the nervous symptoms. The black drop and the different preparations of morphia, in proper doses, may be substituted for the laudanum. These preparations, and their doses, will be found under the articles *Morphia* and *Opium*. In lymphatic females, who have a delicate and flaccid skin, tonic bitters, such as the compound infusion of gentian or columba, or small doses of quinine. A very excellent domestic bitter infusion may be prepared by infusing an ounce of the dried tops of lesser centuary, and two drams of bruised ginger, and the same quantity of bruised cinnamon, in a pint of boiling water, for six hours, and then adding two ounces of the tincture of Columba; this, if kept in a cool place, will retain its qualities without spoiling for a week, and half a wine glassful may be taken three or four times a-day. As to diet and regimen, the same may be employed as we have recommended in hysteria, and when the bowels require to be opened, they should be so by the turpentine and castor oil enema. In plethoric women, on the con-

trary, the preference should be given to warm baths, and the patient allowed to remain in them for some time. A vegetable and indeed spare diet, very moderate exercise, emollient and demulcent articles of diet, in a diluted form, such as well boiled thin oatmeal or grit gruel, sowens, barley water, or boiled barley, and should be entirely debarred the use of coffee, ale, porter, wine or spirituous liquors, and animal food, except of the very mildest description, such as boiled tripe, or if fish is used as a change, boiled whitings, young haddocks, or white trout. A tea spoonful of the tincture of black hellebore and thirty drops of laudanum may be taken at bed-time, on the night previous to the day on which the menses is expected to appear, and the same quantity of the same tincture next morning, in a cup of peppermint or penny-royal tea, and this dose may be continued every four hours, till the discharge appears. In addition to these means, the surgeon of La Pitié recommends 'that in twenty-four or forty-eight hours after the menses appear, we should bleed from the arm, to the extent of a pallette (about eight ounces), and repeat it in fifteen days if necessary.' We had no experience of the effect of bleeding, during the existence of the discharge, and therefore our readers must act on the authority we have quoted; but we have frequently seen the good effects of abstracting a small quantity of blood from the arm of plethoric females afflicted with difficult menstruation, in the intermediate period, although in this, and in almost every case of morbid action in this function, we are convinced, that with the exception of diet and regimen, it is essential to employ them only at the conjectured or regular period of their expected appearance, or one or two days before it, and in the intervals confine ourselves to general palliatives, and constitutional treatment.

An attentive perusal of the preceding observations on this painful affection, will convince the domestic practitioner that the general principles of treatment are two-fold, viz., affording relief from pain during the menstrual period, and, secondly, regulating the general health in the interval, and for these ends we have ordered such means as are most easily carried into effect by a female friend or midwife, or one who has not enjoyed a regular professional education, and these means may be very beneficial in circumstances and situations where every requisite cannot be obtained. The hip bath, or in other words, the patient sitting down in a warm bath, which reaches nearly half-way down the thighs, and half-way up to the navel. Simple warm water often effects relief when applied in this way immediately before the commencement of the menstrual discharge, but it has been deemed more efficacious when the bath consists of a decoction or infusion of wormwood, mugwort, tansy, wild thyme, rue, chamomile flowers, poppyheads, and other herbs and plants, as can be most readily procured. Wild mint, and some other of these, may be had in almost any quarter of the globe, and one, two, three, or all of these in combination, may be used as the hip bath. It should, however, be observed, that a few minutes' boiling will suffice, and that a portion of hotter liquor should be at hand, to keep the bath of uniform temperature. A portion indeed of this herbal decoction should be kept warm, and a quantity put in the commode or other vessel used by the patient, every time a motion of the bowels is obtained during difficult menstruation, as the steam rising about the lower part of the body will have a salutary effect.—In all such cases the parts should be immediately dried, as the steam will create a cold damp.

'A residence,' says Dr Rigby, 'at any chalybeate spring of this country, or on the continent is very desirable, as not only the air, but also the constant active exercise which the patient is excited to take, when residing at such places, are highly conducive to the improvement of her health.' The doctor might have added sulphureous springs, as we have seen the best effects, both from the external and internal use of this class of water, in affections of this kind, while residing for some years in the immediate neighbourhood of a sulphureous spring, too little known, we mean that of Donegal, in Ireland. Guiacum, too, has been much recommended by Dr Dewees in difficult and painful menstruation, who considers it the most successful of any. The same fact has also been observed by the late Dr Goach, and by Dr Locock, but chiefly by these gentlemen where the disease existed with a rheumatic state of the system; and we have long observed, that females who took the tincture of guiacum for the removal of rheumatism, had the menstrual discharge increased. Dr Dewees has adopted a peculiar formula, differing somewhat from that of the pharmacopeia, without, in our opinion, any good reason for doing so, as the ammoniated tincture of the colleges would answer equally well. The doctor digests four ounces of guiacum with a dram and a half of carbonate of soda, or the carbonate of potass, and one ounce of coarsely powdered pimento, or Jamaica pepper, in a pint of alcohol, and he adds the volatile spirit of ammonia occasionally, in the proportion of one dram or two to every four of the tincture, according to the state of the system. 'Perseverance for two or three months,' he says, 'is oftentimes necessary,' and he thinks that this medicine is more decidedly useful where the first menstrual period after its use is more than usually severe. This has been uniformly found a favourable sign. Though the tincture of guiacum has been generally success-

ful it has not been uniformly so. In two instances where it failed the extract of hemlock succeeded, and in another where it had not been successful, tincture of cantharides gave perfect relief.' We think the simple decoction of guiacum, according to the form given under the article *Guiacum* an excellent alterative medicine, to be given in certain cases, in the interval between the menstrual periods, and its volatile tincture, or the formula adopted by Dr Dewees, more applicable in scanty menstruation than in cases of pain and difficulty.

The late Dr Mackintosh of Edinburgh conceived that dysmenorrhea was often occasioned by a mechanical cause, viz. the smallness of the os uteri, as not being sufficient to allow the discharge to pass. This may indeed be true in some cases, but we apprehend they are very rare. When this is satisfactorily ascertained, mechanical means of relief, under proper professional directions, may be employed. See the articles referred to in the course of this paper.

MENTAL DISEASES, OR INSANITY. By these general terms we understand every form of intellectual disorder, whether consisting in a total want or alienation of understanding, as in idiocy, or in the diseased state of one or several of the faculties. Medical writers have adopted different systems of classification, in their treatment of this subject; but perhaps the most convenient is that which comprises all mental diseases under the four heads of mania, melancholy, demency or fatuity, and idiocy. Lunacy, in its proper sense, implies an influence of the changes of the moon on the state of the mind or body, of which modern science cannot recognise the existence. It is true that many diseases are periodical in their returns, and it is not improbable that paroxysms of violence among insane persons, may be really increased at the time of a full moon, by the effect of the shadows of clouds, and other objects, as ghosts are generally seen by moonlight; but any other lunar influence neither experience nor science can discover. The causes of insanity are divided by modern writers into physical and moral. Every excess of passion, joy, grief, anger, fear, anxiety, &c., may become a moral cause of insanity. Great political or civil revolutions have always been observed to be attended with numerous cases of mental derangement. Pinel observed this phenomenon in France, after the revolution of 1789, and Dr Rush describes similar effects in the United States, after the war of the revolution. Strong religious excitement often produces similar results, although in many cases religious enthusiasm is only a form of the malady, and not a cause. Madden states that insanity is rare among the Mohammedans, and attributes it to their consoling belief in the certainty of their salvation. Dr Rush thinks that the disease is more common among civilized communities than with savages, on account of the greater influence of moral causes on the former. The physical causes of insanity are various and numerous; diseases of various kinds, and of different organs, bodily injuries or wounds, excessive indulgence in eating, drinking, and other sensual pleasures, privation, exposure to extreme cold or heat, &c., are among them. Insane persons are often, however, in good health, and dissection does not always detect a disordered condition of the organs. Philosophy is not sufficiently acquainted with the mutual action and reaction of the body and the mind on each other, to decide how far the disordered state of the one is consistent with the sanity of the other; nor is it certain that there is any one organ or function which must be diseased to affect the mind. Climate, age, occupation, and sex, are often mentioned as causes influencing insanity. But climate does not appear to be an exciting cause, although the moral, civil, religious or physical condition of a nation, may have rendered the disorder more frequent in some countries than in others. The seasons, however, appear to exercise an influence, and it is generally observed that the cases of insanity are most numerous in the hottest part of the year. Suicides are most frequent when the thermometer is above 84°. Although many circumstances, both physical and moral, appear to render the female sex most liable to insanity, it does not appear that the number of insane females is greater than that of males: drunkenness being more prevalent among the latter, may be one cause of this. In both sexes, the most active period of life, from thirty to forty, presents the greatest number of cases. In regard to occupation, sufficient data do not exist to show that there is any decided predominance of cases in any particular employment.

Idiocy is either a congenital or an acquired defect of the intellectual faculties, or, as Pinel defines it, an obliteration, more or less absolute, of the functions of the understanding, and the affections of the heart. Congenital idiocy may originate from a malformation of the cranium, or of the brain itself; the senses are often wanting or defective, and life is commonly of short duration. Acquired idiocy proceeds from mechanical injury of the cranium, or from an injury or a disease of the brain, from excess in sensual indulgences, intemperance, fatigue, and from moral causes. In this the senses may be partially affected, or quite destroyed, and life often continues to old age. Absolute idiocy admits of no cure; but it should not too hastily be concluded that a patient is in this state. The term demency or dementia is applied to a complete or partial hebetude of individual faculties, particularly those of association and comparison, producing confusion of thoughts, loss of memory, childishness, a diminution or loss of

the powers of volition; it differs from idiocy in being curable. Persons are reduced to this state, because exterior objects make too weak an impression on them; the sensations are, therefore, feeble, obscure, and incomplete; the patient does not form a correct idea of objects, nor compare, associate, or abstract ideas. It is often merely an attendant of other diseases, or other forms of insanity, and is frequently quite temporary, though it often becomes permanent.

Mania is a species of mental derangement, characterized by the disorder of one or several of the faculties, or by a blind impulse to acts of fury. Adults are the principal subjects. A nervous temperament, an irritable constitution, predispose to it. Females are more exposed to it than males, particularly at the period when menstruation begins or ceases, during pregnancy, and after delivery. Violent emotions, a dissipated life, excess in any indulgence, sometimes produce it. The disorder of the intellectual faculties is manifested by extravagant, gay, gloomy, or furious emotions; the gestures and words seem automatic. Sometimes the conversation is rational, but the patient bursts out at intervals into paroxysms of rage, attacking every thing which he meets; the moral affections also seem deadened, and the most ferocious hatred is displayed towards the most natural objects of love. It is sometimes cured, but sometimes remains stationary, and sometimes is converted into demency. Repeated bleeding, hellebore, cold water poured upon the head, scourging, and other means of terror, were formerly employed as remedies. At present, solitude, warm baths, low diet, &c., are more commonly applied.

Melancholy is a species of mental disorder, consisting in a depression of spirits. Some dark or mournful idea occupies the mind exclusively, so that, by degrees, it becomes unable to judge rightly of existing circumstances, and the faculties are disturbed in their functions. The powers of the soul become weakened, we might say crippled. If these feelings are allowed to attain a height at which the power of self-control is lost, a settled gloom takes possession of the mind. Consciousness, however, may still continue; the person knows his state. But if consciousness is also lost, and this state becomes continual, the melancholic patient is insensible to the world around him; he only lives within himself, and there only in the circle of one fixed idea. In this disordered state of the feelings, the other faculties may still continue to act, although the mode and result of their operation will necessarily be influenced by the existing disease. There may be reflection in the actions of the patient, but the reflection proceeds from false premises. Several kinds of melancholy are distinguished; the distinctions are founded, however, mostly on the cause of the disease. A very common cause of melancholy is love. He who loses the great object of his wishes and affections, which has absorbed, we might almost say, the whole activity of his soul, feels more than jealousy at the success of a fortunate rival; existence appears to him a blank, and himself the most unhappy of men. Another frequent cause of melancholy is gloomy views of religion. A constant excitement of the feelings by the awful picture of the eternal punishment of sin, often produces absolute despair. The use of such means, to prepare the mind for the reception of deep religious principle, has not unfrequently led to distraction and suicide. Repeated failures in enterprises pursued with anxious zeal, may also reduce the faculties of a man so much, that he becomes wrapt up solely in the idea of his misfortune. Melancholy patients often flee from men, haunt solitary places, such as graveyards, and are given to nocturnal rambles. The course of the disease is various; sometimes it lasts a series of years; sometimes it ceases of itself, or is cured by medical aid; more frequently it passes over into other kinds of insanity, or into bodily diseases, as dropsy of the chest, consumption, dropsy in the head, apoplexy, &c. It is said that melancholy people rarely suffer from the gout, or are attacked by epidemic diseases. Several physical causes are enumerated as inducing it, particularly a superfluity of black bile. Various derangements in the physical system tend to occasion it, as debility of the nerves, violent flow of the blood to the heart, superfluity of thick blood.

Although the treatment of persons afflicted with this class of diseases is very properly but seldom entrusted to any except professional men, still as they form a very important class of diseases, and one which is a subject of general interest, we have thought it advisable to give our readers some information on the subject, by quoting the following remarks from Dr Abercromby's excellent work on the intellectual powers.

'There is a peculiar power which is possessed by the mind in a healthy state, of arresting or changing the train of its thoughts at pleasure, of fixing the attention upon one or transferring it to another, of changing the train into something which is analogous to it, or of dismissing it altogether. This power is, to a greater or less degree, lost in insanity, and the result is one of two conditions. Either the mind is entirely under the influence of a single impression, without the power of varying or dismissing it, and comparing it with other impressions; or it is left at the mercy of a chain of impressions which have been set in motion, and which succeed one another according to some principle of connection, over which the individual has no control. In both cases, the mental impression is believed to have a real and present existence in the external

world; and this false belief is not corrected by the actual state of things as they present themselves to the senses, or by any facts or considerations which can be communicated by other sentient beings. Of the cause of this remarkable deviation from the healthy state of the mental functions, we know nothing. We may trace its connection with concomitant circumstances in the bodily functions, and we may investigate certain effects which result from it; but the nature of the change, and the manner in which it is produced, are among those points in the arrangements of the Almighty Creator which entirely elude our researches.

'It appears, then, that there is a remarkable analogy between the mental phenomena in insanity and in dreaming; and that the leading peculiarities of both these conditions are referable to two heads.

'1. The impressions which arise in the mind are believed to be real and present existences, and this belief is not corrected by comparing the conception with the actual state of things in the external world.

'2. The chain of ideas or images which arise, follow one another according to certain associations, over which the individual has no control: he cannot, as in a healthy state, vary the series or stop it at his will.

'In the numerous forms of insanity, we shall see these characters exhibited in various degrees; but we shall be able to trace their influence in one degree or another through all the modifications; and, in the higher states, or what we call perfect mania, we see them exemplified in the same complete manner as in dreaming. The maniac fancies himself a king, possessed of boundless wealth, and surrounded by every form of earthly splendour; and, with all his bodily senses in their perfect exercise, this hallucination is in no degree corrected by the sight of his bed of straw and all the horrors of his cell.

'From this state of perfect mania, the malady is traced through numerous gradations, to forms which exhibit slight deviations from the state of a sound mind. But they all show, in one degree or another, the same leading characters, namely, that some impression has taken possession of the mind, and influences the conduct in a manner in which it would not affect a sound understanding; and that this is not corrected by facts and considerations which are calculated immediately to remove the erroneous impression. The lower degrees of this condition we call eccentricity; and, in common language, we often talk of a man being crazed upon a particular subject. This consists in giving to an impression, or a fancy, undue and extravagant importance, without taking into account other facts and considerations which ought to be viewed in connection with it. The man of this character acts with promptitude upon a single idea, and seems to perceive nothing that interferes with it; he forms plans, and sees only important advantages which would arise from the accomplishment of them, without perceiving difficulties or objections. The impression itself may be correct, but an importance is attached to it disproportioned to its true tendency; or consequences are deduced from, and actions founded upon it, which would not be warranted in the estimate of a sound understanding. It is often difficult to draw the line between certain degrees of this condition and insanity, and in fact they very often pass into each other. This will be illustrated by the following example.

'A clergyman in Scotland, after showing various extravagances of conduct, was brought before a jury to be cognosced; that is, by a form of Scotch law to be declared incapable of managing his own affairs, and placed under the care of trustees. Among the acts of extravagance alleged against him was, that he had burnt his library. When he was asked by the jury what account he could give of this part of his conduct, he replied in the following terms: "In the early part of my life, I had imbibed a liking for a most unprofitable study, namely, controversial divinity. On reviewing my library, I found a great part of it to consist of books of this description, and I was so anxious that my family should not be led to follow the same pursuit, that I determined to burn the whole." He gave answers equally plausible to questions which were put to him, respecting other parts of his conduct, and the result was, that the jury found no sufficient ground for cognoscing him; but in the course of a fortnight from that time, he was in a state of decided mania.

'It is, therefore, incorrect to say of insanity, as has been said, that the maniac reasons correctly upon unsound data. His data may be unsound, that is, they may consist of a mental image which is purely visionary, as in the state of perfect mania lately referred to; but this is by no means necessary to constitute the disease; for his premises may be sound, though he distorts them in the results which he deduces from them. This was remarkably the case in the clergyman now mentioned. His premises were sound and consistent, namely, his opinion of the unprofitable nature of the study of controversial divinity, and his anxiety that his family should not prosecute it. His insanity consisted in the rapid and partial view which he took of the means for accomplishing his purpose,—burning his whole library. Had he sold his library, or that part of it which consisted of controversial divinity, the measure would have been in a correct relation to the object which he had in view, and if we suppose that, in going over his library he had met with some books of an immoral tendency, —to have burnt these to prevent them from falling into the hands of any individual, would

have been the act both of a wise and virtuous man; but to burn his whole library, to prevent his family from studying controversial divinity, was the suggestion of insanity, distorting entirely the true relation of things, and carrying an impression, in itself correct, into consequences which it in no degree warranted.

'A remarkable peculiarity, in many cases of insanity, is a great activity of mind, and rapidity of conception, a tendency to seize rapidly upon incidental or partial relations of things, and often a fertility of imagination, which changes the character of the mind, sometimes without remarkably distorting it. The memory, in such cases, is entire, and even appears more ready than in health; and old associations are called up with a rapidity quite unknown to the individual in his sound state of mind.'

'It is this activity of thought, and readiness of association, that gives to maniacs of a particular class an appearance of great ingenuity and acuteness.'

'The peculiar character of insanity, in all its modifications, appears to be, that a certain impression has fixed itself upon the mind, in such a manner as to exclude all others; or to exclude them from that influence which they ought to have on the mind in its estimate of the relation of things. This impression may be entirely visionary and unfounded; or it may be in itself true, but distorted in the applications which the unsound mind makes of it, and the consequences which are deduced from it. Thus, a man of wealth fancies himself a beggar, and in danger of dying of hunger. Another takes up the same impression, who has in fact sustained some considerable loss. In the one the impression is entirely visionary, like that which might occur in a dream. In the other it is a real and true impression, carried to consequences which it does not warrant. There is a great variety in the degree to which the mind is influenced by the erroneous impression. In some cases, it is such as entirely excludes all others, even those immediately arising from the evidence of the senses, as in the state of perfect mania formerly referred to. In many others, though in a less degree than this, it is such as to change the whole character. The particular manner in which this more immediately appears will depend of course upon the nature of the erroneous impression. A person, formerly most correct in his conduct and habits, may become obscene and blasphemous; accustomed occupations become odious to him, the nearest and most beloved friends become objects of his aversion and abhorrence.'

'The uniformity of the impressions of maniacs is indeed so remarkable, that it has been proposed by Pinel, as a test for distinguishing real from feigned insanity. He has seen melancholics confined in the Bicêtre, for twelve, fifteen, twenty, and even thirty years, and through the whole of that period, their hallucination has been limited to one subject. Others, after a course of years, have changed from one hallucination to another. The sudden revival of old impressions, after having been long entirely suspended by mental hallucinations, presents some of the most singular phenomena connected with this subject. Dr Pritchard mentions an interesting case of this kind from the American Journal of Science. A man had been employed for a day with a beetle and wedges in splitting pieces of wood for erecting a fence. At night, before going home, he put the beetle and wedges into the hollow of an old tree, and directed his sons, who had been at work in the adjoining field, to accompany him next morning to assist in making the fence. In the night he became maniacal, and continued in a state of insanity for several years, during which time his mind was not occupied with any of the subjects with which he had been conversant when in health. After several years his reason returned suddenly, and the first question he asked was, whether his sons had brought home the beetle and wedges. They, being afraid of entering upon any explanation, only said, that they could not find them; on which he rose from his bed, went to the field, where he had been at work so many years before, and found, where he had left them, the wedges, and the iron rings of the beetle, the wooden part being entirely mouldered away.—A lady, mentioned in the same journal, had been intensely engaged for some time in a piece of needle-work; before she had completed it, she became insane, and continued in that state for seven years, after which her reason returned suddenly. One of the first questions she asked related to her needle-work, though she had never alluded to it, so far as was recollected, during her illness. I have formerly alluded to the remarkable case of a lady, who was liable to periodical paroxysms of delirium, which often attacked her so suddenly, that, in conversation, she would stop in the middle of a story, or even of a sentence, and branch off into the subject of her hallucination. On the return of her reason, she would resume the conversation in which she was engaged at the time of the attack, beginning exactly where she had left off, though she had never alluded to it during the delirium, and on the next attack of delirium, she would resume the subject of hallucination, with which she had been occupied at the conclusion of the former paroxysm.

Among the most singular phenomena connected with insanity, we must reckon these cases in which the hallucination is confined to a single point, while on every other subject the patient speaks and acts like a rational man; and he often shows the most astonishing power of avoiding the subject of his disordered impression, when he finds himself in circum-

stances which make it advisable for him to do so.

Lord Erskine gives a very remarkable history of a man, who indicted Dr Monro for confining him without cause in a mad-house. He underwent the most rigid examination by the counsel of the defendant, without discovering any appearance of insanity, until a gentleman came into court, who desired a question to be put to him respecting a princess with whom he had corresponded in cherry-juice. He immediately talked about the princess in the most insane manner, and the cause was at an end. But this having taken place in Westminster, he commenced another action in the city of London, and, on this occasion, no effort could induce him to expose his insanity; so that the cause was dismissed only by bringing against him the evidence taken at Westminster. Several years ago, a gentleman in Edinburgh, who was brought before a jury to be cognosced, defeated every attempt of the opposite counsel to discover any trace of insanity, until a gentleman came into court who ought to have been present at the beginning of the case, but had been accidentally detained. He immediately addressed the patient by asking him what were his latest accounts from the planet Saturn, and speedily elicited ample proofs of insanity.

Of the nature and cause of that remarkable condition of the mental faculties which gives rise to the phenomena of insanity, we know nothing. We can only observe the facts, and endeavour to trace among them some general principle of connection; and even in this, there is great difficulty, chiefly from the want of observations particularly directed to this object.

When the mental impression is of a depressing character, that modification of the disease is produced which is called melancholia. It seems to differ from mania merely in the subject of hallucination, and accordingly we find the two modifications pass into each other,—the same patient being at one time in a state of melancholic depression, and at another of maniacal excitement. It is, however, more common for the melancholic to continue in the state of depression; and generally in reference to one subject; and the difference between him and the exalted maniac does not appear to depend upon the occasional cause. For we sometimes find persons who have become deranged, in connection with overwhelming calamities, show no depression, nor even a recollection of their distresses, but the highest state of exalted mania. The difference appears to depend chiefly upon constitutional peculiarities of character.

'The most striking peculiarity of melancholia is the prevailing propensity to suicide; and there are facts connected with this subject, which remarkably illustrate what may be called the philosophy of insanity. When the melancholic hallucination has fully taken possession of the mind, it becomes the sole object of attention,—without the power of varying the impression, or of directing the thoughts to any facts or considerations calculated to remove or palliate it. The evil seems overwhelming and irremediable, admitting neither of palliation, consolation, nor hope. For the process of mind calculated to diminish such an impression, or even to produce the hope of a palliation of the evil, is precisely that exercise of mind which, in this singular condition, is lost or suspended;—namely, a power of changing the subject of thought, of transferring the attention to other facts and considerations, and of comparing the mental impression with these, and with the actual state of external things. Under such a conviction of overwhelming and hopeless misery, the feeling naturally arises of life being a burden, and this is succeeded by a determination to quit it. When such an association has once been formed, it also fixes itself upon the mind, and fails to be corrected by those considerations which ought to remove it. That it is in this manner the impression arises, and not from any process analogous to the determination of a sound mind, appears, among other circumstances, from the singular manner in which it is often dissipated; namely, by the accidental production of some new impression, not calculated, in any degree, to influence the subject of thought, but simply to give a momentary direction of the mind to some other feeling. Thus, a man mentioned by Pinel, had left his house in the night, with the determined resolution of drowning himself, when he was attacked by robbers. He did his best to escape from them, and having done so, returned home, the resolution of suicide being entirely dissipated. A woman, mentioned, I believe, by Dr Burrows, had her resolution changed in the same manner, by something falling on her head, after she had gone out for a similar purpose.

'Attempts have been made to refer insanity to disease of bodily organs, but hitherto without success. In some instances we are able to trace a connection of this kind; but in a large proportion we can trace no bodily disease. On this subject, as well as various other points connected with the phenomena of insanity, extensive and careful observation will be required, before we are entitled to advance to any conclusions. In regard to what have been called the moral causes of insanity also, I suspect there has been a good deal of fallacy, arising from considering as a moral cause what was really a part of the disease. Thus, we find so many cases of insanity referred to erroneous views of religion, so many to love, so many to ambition, &c. But perhaps it may be doubted whether that which was in these cases considered as the cause, was not rather, in many instances, a part of the hal-

lucination. And even when the mind does give way under a great moral cause, such as overwhelming misfortunes, we often find that the hallucination does not refer to them, but to something entirely distinct. Striking examples of this are mentioned by Pinel.

'Insanity, in a large proportion of cases, is to be traced to hereditary predisposition, and this is often so strong, that no prominent moral cause is necessary for the production of the disease, and probably no moral treatment would have any effect in preventing it. We must, however, suppose, that where a tendency to insanity exists, there may be, in many cases, circumstances in mental habits or mental discipline calculated either to favour or to counteract the tendency.

'The higher degrees of insanity are in general so distinctly defined in their characters, as to leave no room for doubt on deciding upon the nature of the affection. But it is otherwise in regard to many of the lower modifications; and great discretion is often required, in judging whether the conduct of an individual, in particular instances, is to be considered as indicative of insanity. This arises from the principle, which must never be lost sight of, that, in such cases, we are not to decide simply from the facts themselves, but by their relation to other circumstances, and to the previous habits and character of the individual. There are many peculiarities and eccentricities of character which do not constitute insanity; and the same peculiarities may afford reason for suspecting insanity in one person and not in another; namely, when in the former they have appeared suddenly, and are much opposed to his previous and uniform character, while to the latter they have been long known to be habitual and natural. Thus, acts of thoughtless prodigality and extravagance may in one person be considered entirely in accordance with his uniform character; while the same acts, committed by a person formerly distinguished by sedate and prudent conduct, may give good ground for suspecting insanity, and in fact constitute a form in which the affection very often appears. In ordinary cases of insanity, a man's conduct is to be tried by a comparison with the average conduct of other men; but, in many of the cases now referred to, he must be compared with his former self.

'Another caution is to be kept in mind, respecting the mental impressions of the individual in these or suspected cases of insanity;—that an impression, which gives reason for suspecting insanity in one case, because we know it to be entirely unfounded and imaginary, may allow of no such conclusion in another, in which it has some reasonable or plausible foundation. Insane persons indeed often relate stories which hang together so plausibly and consistently, that we cannot say whether we are to consider them as indicative of insanity, until we have ascertained whether they have any foundation, or are entirely imaginary. The same principle applies to the antipathies against intimate friends, which are often so remarkable in the insane. They may be of such a nature as decidedly to mark the hallucination of insanity—as when a person expresses a dislike to a child, formerly beloved, on the ground that he is not really his child, but an evil spirit which has assumed his form. This is clearly insanity; but if the antipathy be against a friend or relative, without any such reason assigned for it, we require to keep in view the inquiry, whether the impression be the result of hallucination or whether the relation has really given any ground for it. In slight or doubtful cases, much discretion should be used in putting an individual under restraint, and still more in immediately subjecting him to confinement in an asylum for lunatics. But there is one modification in which all such delicacy must be dispensed with; namely, in those melancholic cases have shown any tendency to suicide. Whenever this propensity has appeared, no time is to be lost in taking the most effectual precautions; and the most painful consequences have very often resulted, in cases of this description, from misplaced delicacy and delay.

'Some of the points which have been briefly alluded to, seem to bear on the practical part of this important subject, the moral treatment of insanity. Without entering on any lengthened discussion, some leading principles may be referred to the following heads:—

'1. It will be generally admitted, that every attempt to reason with a maniac is not only fruitless, but rather tends to fix more deeply his erroneous impression. An important rule, in the moral management of the insane, will therefore probably be, to avoid every allusion to the subject of their hallucination, to remove everything calculated by association to lead to it, and to remove them from scenes and persons likely to recal or keep up the erroneous impression. Hence, probably, in a great measure arises the remarkable benefit of removing the insane from their usual residence, friends, and attendants, and placing them in new scenes, and entirely under the care of strangers. The actual effect of this measure is familiar to every one, who is in any degree conversant with the management of the insane. That the measure may have its full effect, it appears to be of importance that the patient should not for a considerable time be visited by any friend or acquaintance; but should be separated from everything connected with his late erroneous associations. The danger also is well known which attends premature return to home and common associates: immediate relapse having often followed this in cases which had been

going on for some time in the most favourable manner.

'2. Occupation. This is referable to two kinds, namely, bodily and mental. The higher states of mania, in general, admit of no occupation, but on the contrary often require coercion. A degree below this may admit of bodily occupation, and when this can be accomplished in such a degree as fully to occupy the attention, and produce fatigue, there is reason to believe that much benefit may result from it. On a similar principle, it is probable, that in many cases much benefit might result from moral management calculated to revive associations of a pleasing kind, in regard to circumstances anterior to the occurrence of the malady.

'3. Careful classification of the insane, so that the mild and peaceful melancholic may not be harassed by the ravings of the maniac. The importance of this is obvious; but of still greater importance it will probably be, to watch the first dawnings of reason, and instantly to remove the patient from all associates by whom his mind might be again bewildered.

'Cases of decided insanity, in general, admit of little moral treatment, until the force of the disease has been broken in some considerable degree. But among the numerous modifications which come under the view of the physician, there are various forms in which, by judicious moral management, a great deal is to be accomplished. Some of these reflections are of a temporary nature, and have so little influence on a man's general conduct in life, that they are perhaps not known beyond his own family or confidential friends. In some of these cases, the individual is sensible of the singular change which has taken place in the state of his mental powers, and laments the destitution of his feelings and affections. He complains, perhaps, that he has lost his usual interest in his family, and his usual affection for them, and that he seems to be deprived of every feeling of which he was formerly susceptible. The truth is, that the mind has become so occupied by the erroneous impression, as to be inaccessible to any other, and incapable of applying to any pursuit, or following out a train of thought.

'A most interesting affection of this class often comes under the observation of the physician, consisting of deep but erroneous views of religion, generally accompanied with disturbed sleep, and considerable derangement of the system, and producing a state of mind closely bordering upon insanity. It occurs most commonly in young persons of acute and susceptible feelings, and requires the most delicate and cautious management. Two modes of treatment are frequently adopted in regard to it, both equally erroneous. The one consists in hurrying the individual into the distraction of company, or a rapid journey; the other in urging religious discussions, and books of profound divinity. Both are equally injudicious, especially the latter; for every attempt to discuss the important subject to which the distorted impression refers, only serves to fix the hallucination more deeply. The mode of treatment, which I have always found most beneficial, consists of regular exercise, with attention to the general health; and in enforcing a course of reading of a nature likely to fix the mind, and carry it forward in a connected train. Light reading or mere amusement will not answer the purpose. A regular course of history, as formerly mentioned, appears to succeed best, and fixing the attention by writing out the dates and leading events in the form of a table. When the mind has been thus gradually exercised for some time in a connected train of thought, it is often astonishing to observe how it will return to the subject which had formerly overpowered it, with a complete dissipation of former erroneous impressions. A common complaint at the commencement of such an exercise is, that the person finds it impossible to fix the attention, or to recollect the subject of even a few sentences: this is part of the disease, and by perseverance gradually disappears. This experiment I have had occasion to make many times, and it has always appeared to me one of extreme interest. I do not say that it has uniformly succeeded, for the affection frequently passes into confirmed insanity; but it has succeeded in a sufficient number of instances to give every encouragement for a careful repetition of it. The same observations, and the same mode of treatment, apply to the other forms of partial hallucination. The plan is, of course, to be assisted by regular exercise, and attention to the general health, which is usually much impaired. The affections are particularly connected, in a very intimate manner, with a disordered state of the stomach and bowels, and with derangements in the female constitution. Means adapted to these become, therefore, an essential part of the management.

'In that remarkable obliteration of the mental faculties, on the other hand, which we call idiocy, fatuity, or dementia, there is none of the distortion of insanity. It is a simple torpor of the faculties, in the higher degrees amounting to total insensibility to every impression, and some remarkable facts are connected with the manner in which it arises without bodily disease. A man, mentioned by Dr Bush, was so violently affected by some losses in trade, that he was deprived almost instantly of all his mental faculties. He did not take notice of any thing, not even expressing a desire for food, but merely taking it when it was put into

his mouth. A servant dressed him in the morning, and conducted him to a seat in his parlour, where he remained the whole day, with his body bent forward, and his eyes fixed on the floor. In this state he continued nearly five years, and then recovered completely and rather suddenly. The account which he afterwards gave of his condition during this period was, that his mind was entirely lost; and that it was only about two months before his final recovery, that he began to have sensations and thoughts of any kind. These at first served only to convey fears and apprehensions, especially in the night-time.

'The most striking illustration of the various shades of idiocy, is derived from the modifications of intellectual condition observed in the Cretins of the Vallais. These singular beings are usually divided into three classes, which receive the name of Cretins, Semi-cretins, and Cretins of the third degree. The first of these classes, or perfect cretins, are, in point of intellect, scarcely removed above mere animal life. Many of them cannot speak, and are only so far sensible of the common calls of nature, as to go, when excited by hunger, to places where they have been accustomed to receive their food. The rest of their time is spent, either in basking in the sun, or sitting by the fire, without any trace of intelligence. The next class, or semi-cretins, show a higher degree of intelligence; they remember common events, understand what is said to them, and express themselves in an intelligible manner on the most common subjects. They are taught to repeat prayers, but scarcely appear to annex any meaning to the words which they employ; and they cannot be taught to read or write, or even to number their fingers. The cretins of the third degree learn to read and write, though with very little understanding of what they read, except on the most common topics. But they are acutely alive to their own interest, and extremely litigious. They are without prudence or discretion in the direction of their affairs, and the regulation of their conduct; yet obstinate and unwilling to be advised. Their memory is good as to what they have seen or heard, and they learn to imitate what they have observed in various arts, as machinery, painting, sculpture, and architecture; but it is mere imitation, without invention. Some of them learn music in the same manner; and others attempt poetry of the lowest kind, distinguished by mere rhyme. It is said that none of them can be taught arithmetic; but I do not know whether this has been ascertained to be invariably true. There is no doubt that it is a very general peculiarity.

'The imbecile in other situations show characters very analogous to these. Their memory is often remarkably retentive; but it appears to be merely a power of retaining facts or words in the order and connection in which they have been presented to them, without the capacity of tracing relations, and forming new associations. In this manner they sometimes acquire languages, and even procure a name for a kind of scholarship; and they learn to imitate in various arts, but without invention. Their deficiency appears to be in the powers of abstracting, recombining, and tracing relations; consequently they are deficient in judgment, for which these processes are necessary. The maniac, on the other hand, seizes relations acutely, rapidly, and often ingeniously, but not soundly. They are only incidental relations, to which he is led by some train of associations existing in his own mind; but they occupy his attention in such a manner, that he does not admit the consideration of other relations, or compare them with those which have fixed themselves upon his mind. The states of idiocy and insanity, therefore, are clearly distinguished in the more complete examples of both; but many instances occur in which they pass into each other, and where it is difficult to say to which of the affections the case may be referred. I believe they may also be, to a certain extent, combined; or that there may be a certain diminution of the mental powers existing along with that distortion which constitutes insanity. They likewise alternate with one another; maniacal paroxysms often leaving the patient in the intervals in a state of idiocy. A very interesting modification of another kind is mentioned by Pinel. Five young men were received into the Bicêtre, whose intellectual faculties appeared to be really obliterated; and they continued in this state for periods of from three to upwards of twelve months. They were then seized with paroxysms of considerable violence, which continued from fifteen to twenty-five days, after which they all completely recovered.

'Idiocy can seldom be the subject either of medical or moral treatment; but the peculiar characters of it often become the object of attention in courts of law, in relation to the competency of imbecile persons to manage their own affairs, and much difficulty often occurs in tracing the line between competency and incompetency. Several years ago a case occurred in Edinburgh, which excited much discussion, and shows, in a striking manner, some of the peculiarities of this condition of the mental faculties. A gentleman of considerable property having died intestate, his heir-at-law was a younger brother, who had always been reckoned very deficient in intellect; and consequently his relatives now brought an action into the Court of Session, for the purpose of finding him incompetent, and obtaining the authority of the Court for putting him under trustees. In the investigation of this case, various respectable persons

deponed, that they had long known the individual, and considered him decidedly imbecile in his understanding, and incapable of managing his affairs. On the other hand, most respectable evidence was produced, that he had been when at school an excellent scholar in the languages, and had repeatedly acted as a private tutor to boys; that he was remarkably attentive to his own interest, and very strict in making a bargain; that he had been proposed as a candidate for holy orders, and, on his first examination in the languages, had acquitted himself well; but that in the subsequent trials, in which the candidate is required to deliver a discourse, he had been found incompetent. The Court of Session, after long pleadings, decided that this individual was incapable of managing his affairs. The case was then appealed to the House of Lords, where, after further protracted proceedings, this decision was affirmed. I was well acquainted with this person, and was decidedly of opinion that he was imbecile in his intellects. At my suggestion the following experiment was made in the course of the investigation. A small sum of money was given him, with directions to spend it, and present an account of his disbursement, with the addition of the various articles. He soon got rid of the money, but was found totally incapable of this very simple process of arithmetic, though the sum did not exceed a few shillings. This individual, then, it would appear, possessed the simple state of memory which enabled him to acquire languages, but was deficient in the capacity of combining, reflecting, or comparing. His total inability to perform the most simple process of arithmetic, was a prominent character in the case, analogous to what I have already stated in regard to the Cretins. In doubtful cases of the kind, I think this might be employed as a negative test with advantage; for it probably will not be doubted, that a person who is incapable of such a process, is incompetent to manage his affairs.

'It is a singular fact, that the imbecile are, in general, extremely attentive to their own interest, and perhaps most commonly cautious in their proceedings. Ruinous extravagance, absurd schemes, and quixotic ideas of liberality and magnificence, are more allied to insanity; the former may become the dupes of others, but it is the latter who are most likely to involve and ruin themselves.

'Before leaving the subject of insanity, there is a point of great interest which may be briefly referred to. It bears in a very striking manner upon what may be called the pathology of the mental powers; but I presume not to touch upon it, except in the slightest manner. In the language of common life, we sometimes speak of a moral insanity, in which a man rushes headlong through a course of vice and crime, regardless of every moral restraint, of every social tie, and of all consequences, whether more immediate or future. Yet if we take the most melancholy instance of this kind that can be furnished by the history of human depravity, the individual would still be recognised, in regard to all physical relations, as a man of a sound mind; and he may be as well qualified as other men for the details of business, or even the investigations of science. He is correct in his judgment of all the physical relations of things; but, in regard to their moral relations, every correct feeling appears to be obliterated. If a man, then, may thus be correct in his judgment of all physical relations, while he is lost to every moral relation, we have strong ground for believing that there is in his constitution a power distinct from reason, but which holds the same sway over his moral powers, that reason does among his intellectual; and that the influence of this power may be weakened or lost, while reason remains unimpaired. This is the moral principle, or the power of conscience. It has been supposed by some to be a modification of reason, but the considerations now referred to appear to favour the opinion of their being distinct. That this power should so completely lose its sway, while reason remains unimpaired, is a point in the moral constitution of man which it does not belong to the physician to investigate. The fact is unquestionable; the solution is to be sought for in the records of eternity.'

MERCURY, or QUICKSILVER, a liquid metal extensively used in the arts and chemistry, as well as in medicine. Indeed metallic mercury possesses no power as a medicine until it has undergone some chemical preparation. The preparations of this mineral are used in many different diseases, and produce different effects according to the manner in which they are prescribed. When given in combination with a purgative they act upon the bowels, whilst in combination with diuretics they act on the kidneys. But the principal and almost specific effect of mercurials, when given in small doses, frequently repeated for some time, is to act upon the salivary glands, cause increased secretion of saliva, or salivation, as it is termed; and when this takes place we judge that the whole system has been affected by the medicine.

The preparations of mercury are so numerous, that it would occupy too much of our space to enter on the description of each, we shall therefore only mention those in general use, and likely to be used as medicines by the domestic practitioner.

Mercurial, or *Blue Pill*, is formed by triturating metallic mercury with conserve of roses, till the globules disappear, in other words, till it is oxidized. In every five grains of blue pill there is about one grain of mercury. This is perhaps one of the mildest mercurials which is used,

and when combined with a slight cathartic, forms an excellent alterative pill, and is very useful in cases of biliary derangement. When given with view to produce salivation, one pill may be given morning and evening for a week or ten days, till the effect is produced.

Calomel, or *Submuriate of Mercury*, is given in doses from one to twenty grains; and it may be mentioned, that when given as a purgative, it should be prescribed in small doses, from two to six grains, combined with colocynth, rhubarb, or some other medicine, to determine its action towards the bowels. In severe cases of dysentery, again it is best to prescribe it in large doses, in conjunction with hyosciamus, or opium and ipecacuanha, when it will be found to allay the irritation of the mucous membrane, and to alter the character of the hepatic secretion and of the evacuations. When given for the purpose of affecting the system, it should be exhibited in small doses of from one to two grains, frequently repeated till the desired effect is produced.

Another mercurial preparation, which is used is the *Blue* or *Mercurial Ointment*. This ointment is prepared by rubbing mercury with lard until the globules entirely disappear. The quantity of mercury contained in the strong mercurial ointment is about thirty grains in one dram. Mercurial ointment is introduced into the system by rubbing it into the skin, either at the groin or armpits, or over the affected parts, repeating the friction twice a-day, until symptoms of salivation appear. It is also used as a stimulating application to sores, but this always requires great caution, as it may affect the system and cause great debility.

The Red Oxide of Mercury, or *Red Precipitate*, is used as a stimulating ointment, and is also an excellent escharotic application to carious bones, as it is sufficiently powerful to destroy the carious portion, and cause it to exfoliate, without destroying the vitality of the neighbouring sound bone, which sometimes occurs after the use of the actual cautery. The red oxide is also used for the purpose of mercurial fumigations, by heating it on metal plates, when we wish to effect salivation rapidly; but this should never be done by the non-professional practitioner.

Corrosive Sublimate, or *Muriate of Mercury*. This is a very powerful medicine, but one which should never be in the domestic medicine chest, as it is virulent poison, for which reason we have thought it better to give a detailed account of its poisonous effects, and the requisite treatment, and other particulars regarding this preparation under its proper head. See *Corrosive Sublimate*.

MERCURIAL MEDICINES, METHODS OF USING. When we wish to use mercurials simply as purgative medicines with a view to act on the secretion of the liver, or, as they are popularly named, as antibilious medicines, the best method is to give from three to five grains of calomel, or blue pill, either combined with some laxative or colocynth, or aloes, &c., or alone, and to follow the dose with a saline draught, in the course of six or eight hours, so as to determine the action of the medicine towards the bowels. If we wish to prescribe them as slight alteratives it is best to combine a few grains of calomel, or blue pill (say from two to four), with some diaphoretic medicine, as some antimonial preparation, or Dover's powder, and follow this by a gentle laxative draught in the morning, and this may be repeated, watching, however, lest it should cause salivation.

When it is wished to affect the system fully, five grains of blue pill, or two of calomel, either alone, or combined with a small quantity of opium if it causes purging, should be given twice a day till slight salivation occurs; or the mercurial ointment may be rubbed twice a-day on the inside of the thighs, until the same effects are produced. There are other methods but not of a nature to be trusted out of professional hands, and in all cases it should be recollected that there is no need of pushing salivation to a great extent; it is quite sufficient that the mouth be affected slightly. The mercurials should then be stopped, and a gentle laxative given occasionally, and great care should be taken to prevent the patient catching cold during the progress of salivation.

The general effects of mercury on the system are those of a strong and general stimulant, causing a degree of feverishness and increasing all the secretions, but more particularly that of the salivary glands, and when this last takes place, as we have already stated, we presume that its effects have pervaded the whole system; and here we would again point out the inutility and risk of pushing it farther than merely to affect the mouth slightly. The signs by which this effect is known, are—increased flow of saliva or spittle, slight soreness of the mouth, particularly about the gums, and a peculiar fœtor of the breath. If it be pushed farther it may give rise to ulcerations of the fauces, disease of the bones, and eruptions on the skin, accompanied with great debility, loss of muscular power, anxiety, palpitation and irregular action of the heart, and frequently violent vomiting and purging. The eruption on the skin is in red blotches, and very painful. In such cases we require to give the decoction of sarsaparilla, with diluted sulphuric acid, and to support the strength by means of tonics and generous diet; and to promote perspiration by the use of the warm bath and diaphoretics. In fine, there are few articles of the Materia Medica at once so useful, and yet, by abuse so dangerous as the preparations of mercury.

MESENTERY. This is a membranous production, formed of two laminæ of the peritonium, between which are a quantity of cellular and fatty membrane, numerous glands, lacteals, lymphatics, arteries, veins, and nerves. It answers many important purposes, and is distinguished into the *mesentery*, strictly so called, which adheres to the three superior lumbar vertebræ, and has the small intestines hanging to it. Another part, the *mesecolon*, which supports the colon, and the *mesorectum*, a portion of mesentery in the pelvis enclosing the rectum. This is one of the three fatty membranes which the wise and merciful Creator has provided, for lubricating, nourishing, and defending from danger the viscera of the belly. For in common with the peritonium and omentum, the mesentery sustains the intestines, affords them a soft lubricating coat, and gives passage to the mesenteric vessels, lacteals, and nerves. This membrane is frequently the seat of disease, and an enlargement of the mesenteric glands is a very common affection with children in great towns, its characteristic symptom being a hard tumid belly.

METASTASIS, the translation or changing of diseased action from one part of the body to another; as, for example, when a cutaneous eruption is suddenly checked by exposure to cold, or by cold applications, and the disease attacks a deep seated part: or in cases of gout, where the disease suddenly shifts from the foot to the stomach, or some other internal organ.

MEZEREON, or SPURGE OLIVE. The bark of this plant is used in medicine, and was at one time supposed to possess great efficacy in curing venereal sores and nodes of the bones, produced either by the disease, or by the mercury used in its cure. It is but little used in medicine at the present time. It enters into the composition of the Lisbon diet drink, and the compound decoction of sarsaparilla of the Dublin Pharmacopeia. Its effects are those of a stimulant diaphoretic.

MIDWIFERY is the art of aiding and facilitating child-birth, and of providing for the preservation of the health and life of the mother during and after her delivery. It is founded on physiological and pathological science. Midwifery, in some form, has been employed from the most ancient times, even among the rudest nations, although it was at first very defective, and consisted probably, only in the most obvious and indispensable manual applications and aids. Even in the most cultivated nations of antiquity, this art was in a low state. The Israelites had their midwives. The first accounts of scientific male midwifery are to be found among the Greeks of the age of Hippocrates (who died 357 B. C.). From the writings of that period, we learn that the obstetrical art had then reached a higher degree of cultivation among the Greeks than in most parts of Europe during the last century. Notwithstanding, there was much that was wrong and injudicious in their system, and only a small part of the proper means of assistance was made use of. They often contented themselves with invoking Ilithyia, the goddess of childbirth. Among the Romans, midwifery was confined to a few simple aids, and sacrificing to Juno Lucina, and other deities who presided over childbirth. It was not till a later period that the Roman women commonly employed midwives; but, in difficult cases the physicians were called in. These were either Greeks living in Rome, under the dominion of the Roman emperors, or they drew their knowledge chiefly from Greek authors. To this epoch belong particularly Soranus (100 A. D.) and Moschion, who composed the first manual of midwifery which has come down to us. In the middle ages the science was very much neglected: it was confined to the cutting of the fœtus from the body of the mother, in case of her death before delivery. In consequence of the injudicious interference of the popes, who conferred the professorships in the newly established schools on the monks, and gave them the privilege of practising physic, while they strictly prohibited the practice of surgery and anatomy, both to the physicians and laity (1215), the obstetric art became more confined to internal and superstitious applications, and, indeed generally sank into the hands of women, monks, peasants, and other ignorant persons. When they had exhausted their medical skill, the saints were invoked, images and relics were hung upon the woman in labour, &c. The art continued in this state till the sixteenth century. At this time the improvements in printing and engraving gradually introduced a better era, since the surviving works of the Greeks, Romans, and Arabians were multiplied, the intellectual intercourse among men became more general, and the spirit of inquiry was awakened, and found a wider field. At this period the business of midwifery was so exclusively in the hands of women, that it was disgraceful for a man to engage in it. Such an undertaking was considered as an abominable attempt on the virtue and honour of the female sex, and he who ventured upon it, as a magician. In Hamburg, in 1521, one Veites was condemned for this offence to the flames. Several books, however, were published for the better instruction of midwives in their profession. The first was by Eucharius Roslein, at Worms, called the 'Rose-Garden for Midwives and Pregnant Women,' (1513.) The science of anatomy, which was now more freely studied and patronized, also contributed much to the improvement of midwifery, in which Vesalius, in Padua, (1543), particularly distinguished himself. The physicians and surgeons

turned their attention only to the theoretical part of the science, but the latter gradually proceeded to the practice of it, by performing the Cesarean operation on women who had died in childbirth, (which was now not only permitted, but commanded by law), and gradually undertaking other operations on women pregnant and in labour. Francis Rousset, a surgeon in Paris, published a treatise in 1581, in which he brought several proofs of the possibility of safely performing the Cesarean operation on the living mother, and it was he who first gave this operation its present name. After the publication of this treatise, the operation was frequently performed on the living subject, both in and out of France, and sometimes even when it was not unavoidably necessary. Pineau, a surgeon in Paris, first suggested, in 1589, the section of the pubes, by the observations which he communicated on the separation which takes place between the bones of the pelvis, for the purpose of facilitating birth, when made difficult by the extreme narrowness of the pelvis. In Germany, midwifery long remained in an imperfect state: the midwives were generally ignorant, and men were seldom employed; while in France and Italy it was already a common thing to call in the aid of physicians and surgeons. A surgeon of Paris, Clement, distinguished in the practice of midwifery, who had attended La Valiere, the mistress of Louis XIV., in her delivery, first received the name of *accoucheur* as a title of honour. The surgeons were so well pleased with the name, that they gradually adopted it as a general appellation. Henry of Deventer, a surgeon of Holland, was the first who, in 1701, endeavoured to establish midwifery on scientific principles. In France, where the art had risen to higher perfection than in other countries, a school for midwives was established in the Hôtel Dieu, in 1745. The history of the origin and invention of the forceps, that highly useful instrument in midwifery, is involved in some obscurity. Between 1660 and 1670, Chamberlen, a London surgeon, professed to have invented an instrument with which he was able to terminate the most difficult labours without injuring either the mother or child; but he kept this discovery to himself, and, in 1688, went to Amsterdam, where he sold it to certain practitioners, who turned it to their profit. It was thus kept secret among certain persons for a long time. At last, Palfyn, a famous anatomist and surgeon of Ghent, in Flanders, got some knowledge of the instrument, and caused one to be made, 1723. Some species of forceps appear to have been known even in the time of Hippocrates; but the merit of Chamberlen's invention consisted in making the blades separable, and capable of being locked together after having been introduced into the vagina, and placed one on each side of the head of the child. It was afterwards very much improved, especially by Levret, in Paris, 1747; Plevier, in Amsterdam, 1750; and Smellie, in London, 1752. The art of midwifery was also perfected by the writings and instructions of these men. Germany, too, produced several men of eminence in this department of the medical art, who were not only famous for their operative skill, but contributed much to the advancement of midwifery by their observations, and to the diffusion of correct principles on the subject, by their lectures and writings. The establishment of several schools of midwifery also facilitated the study of the art, and brought it to the degree of perfection which it now boasts. Those physicians of recent date, who have contributed most to this art in Germany, are the two Starks in Jena, Osiander in Gottingen, Siebold in Wurzburg, Wigand, Nagele, Boer, Jorg, &c. The course now adopted seems to be the true one, viz., by the cultivation of all the branches of knowledge connected with this department, to determine the cases in which art may and ought to be passive, and leave the work to nature, and those in which nature is insufficient to accomplish the delivery alone, or at least without injury to the mother or child.

MILK. A secretion peculiar to the females of the class *mammalia*, or those animals which feed their young from their teats, and which takes place, in some of them, only during and after the time of gestation. It differs as procured from different animals, but its general properties are the same in all. When this fluid is allowed to stand for some time, it undergoes spontaneous changes, and is resolved into its component parts: a thick yellowish substance collects on the surface, which is called cream, and the milk beneath becomes thinner than before, and is of a pale bluish colour. When cream is kept for some days without being disturbed, it gradually becomes thicker, till at last it acquires the consistence of cheese; and hence one method of making cream-cheese, merely by putting cream into a linen bag, and leaving it there till it becomes solid. When cream is shaken, it is resolved into its component parts. The process by which this is accomplished is called churning, by which two substances are obtained, butter and butter-milk. In the making of butter, cream is allowed to stand for some time, during which an acid is generated. It is then put into a churn and shaken, by which the butter is gradually separated. What is left (the butter-milk) has a sour taste, but by no means so much so as that of the cream before the churning. Butter is sometimes also made from cream which has not become sour, but the process is much more tedious, the acid formed in the other case favouring its separation. Butter is merely an animal oil, solid at a natural

heat, but held in solution in milk, by some of the other substances. As thus procured, it is not pure, but may in a great measure be freed from its impurities, by washing it with cold water; and though apt to become rancid, yet, when mixed with salt, may be kept any length of time. Milk from which butter has been taken, undergoes spontaneous changes. It becomes much sourer, and congeals into a mass of the consistence of jelly. When heated, the fermentation of this coagulum is hastened, and by the addition of certain substances, it very soon takes place; thus acids and spirit of wine curdle it, which is owing to the albumen it contains being acted on by them, in the same way as blood or white of eggs. By far the most powerful coagulator, however, is the substance called rennet, which is the decoction of the stomach of animals, as a calf. When the milk is previously heated, and rennet added, it is almost instantly coagulated. If after this it is cut, a thinnish fluid oozes from it, and if it be put into a bag and squeezed, the whole of this is forced out, and a whitish, tough matter is left; the former is whey, the latter curd. On this depends the process of making cheese, which varies in richness, according to the mode followed in preparing it. When milk is heated gradually, and merely to the temperament at which it curdles, and if the curd be freed gently from the whey, it retains almost the whole of the cream, which adds to its richness and flavour. But when it is curdled quickly, and the whey is speedily removed by cutting the curd, a great deal, or nearly the whole of the cream is carried off, and the cheese is poor, and has not the rich flavour of that made in the other way. In making cheese, having obtained the curd, and freed it from its whey, the remaining part of the process is merely to subject it to pressure, by which the whole of the whey is forced out, the colour being communicated by the addition of colouring matter: that generally used is annotta, which is mixed with the milk. Whey has a pleasant taste, and contains a considerable quantity of a sweetish substance called sugar of milk; hence it is frequently used as drink, and from its nutritious quality, it is administered to delicate people; hence the use of asses' milk, which contains a large quantity of it. It is from its containing this saccharine matter, that it is sometimes, as in some of the northern counties of Scotland, made to undergo fermentation, by which a very weak spirituous fluid is obtained. By evaporation it affords a minute quantity of saline matter, and a considerable portion of sugar of milk. When whey or milk is exposed to a temperature between 60° and 80° it undergoes a spontaneous change, attended by the production of an acid, which was originally examined by Scheele, and has been termed lactic acid.

MINERAL WATERS, are those waters which contain such a proportion of foreign matter, as to render them unfit for common use, and give them a sensible flavour, and a specific action upon the animal economy. They are very various, both in their composition and temperature, and of course in their effects upon the system; they are generally, however, so far impregnated with acid or saline bodies as to derive from them their peculiarities, and are commonly divided into four classes: acidulous or carbonated, saline, chalybeate or ferruginous, and sulphureous. In regard to temperature, they are also divided into warm, or thermal, and cold. The substances which have been found in mineral waters are extremely numerous, but those which most frequently occur are oxygen, nitrogen, carbon, and sulphur, in different combinations; lime, iron, magnesia, &c. Mineral waters are also divided into artificial and natural, the former being produced in the laboratories of of the chemists, and sometimes merely imitations of the natural waters by a combination of the same ingredients, and sometimes composed of different ingredients, or of the same in different proportions, in such a manner as to form compounds not known to exist in nature. The saline springs consist in general of salts of soda and lime, or of magnesia and lime, with carbonic acid and oxide of iron. The principal are those of Pyrmont, Sedlitz, Epsom, &c. The ferruginous waters have a decided styptic taste, and are turned black by an infusion of gall-nuts, The iron is sometimes in the state of an oxide, held in solution by carbonic acid; sometimes exists as a sulphate, and sometimes both as a sulphate and carbonate; the waters of Vichy, Spa, Forges, Passy, Cheltenham, Tunbridge, Bedford, Pittsburgh, Yellow-Springs, in Ohio, Virginia, Pennsylvania, &c., &c., are among them.

The acidulous waters are characterized by an acid taste, and by the disengagement of fixed air. They contain five or six times their volume of carbonic acid gas; the salts which they contain are muriates and carbonates of lime and magnesia, carbonate and sulphate of iron, &c.; the waters of Bath, Buxton, Bristol, Vichy, Seltz, New Lebanon, &c., are acidulous. The sulphureous waters are easily recognised by their disagreeable smell, their property of tarnishing silver and copper, &c.; the springs of Saratoga and Ballston, Harrowgate, Moffat, Aix-la-Chapelle, Aix, and numerous others, are of this class.

The following table, showing the composition of several of the principal mineral waters, is taken from that useful work, 'Henry's Elements of Chemistry.' The temperature, when not expressed, is understood to be 49° or 50° Fahr.

I.—CARBONATED WATERS.

SELTZER, Bergman.

In each wine pint,
Carbonic acid, - 17 cubic inches
Specific gravity, - 1·0027

Carbonate of soda, -	4 grains
Carbonate of magnesia,	5
Carbonate of lime, -	3
Chloride of sodium -	17
	29

CARLSBAD, (Temperature 165° Faht.) Berzelius

In a wine pint,
Carbonic acid, - 5 cubic inches

In 1000th part by weight,

Sulphate of soda, -	2·58714 grains
Carbonate of soda, -	1·25200
Chloride of sodium, -	1·04893
Carbonate of lime, -	0·31219
Fluate of ditto, -	0·00331
Phosphate of ditto, -	0 00019
Carbonate of strontia.	0·00097
Carbonate of magnesia,	0·18221
Phosphate of alumina,	0·00034
Carbonate of iron, -	0 00424
Carbonate of manganese,	a trace
Silica, - - -	0·07504
	46656

SPA, Bergman.

Specific gravity, - 1·0010
In each wine pint,
Carbonic acid, - 13 cubic inches

Carbonate of soda, -	1·5 grains
Carbonate of magnesia,	4·5
Carbonate of lime, - -	1·5
Chloride of sodium, -	0·2
Oxide of iron, - -	0·6
	8·3

PYRMONT, Bergman.

Specific gravity, - 1.0024
In each wine pint,
Carbonic acid, 26 cubic inches

Carbonate of magnesia, -	10 grains
Carbonate of lime, - -	4·5
Sulphate of magnesia, -	5·5
Sulphate of lime, - -	8·5
Chloride of sodium, - -	1·5
Oxide of iron,	0·6
	30·6

PONGES, Hassenfratz.

In each wine pint,
Carbonic acid, - 30 cubic inches

Carbonate of soda, -	10 grains
Carbonate of magnesia, -	1·2
Carbonate of lime, - -	12·
Chloride of sodium,	2·2
Oxide of iron, - -	2·5
Silica, - - - -	0·5
	28·4

II.—SULPHURETTED WATERS.

AIX-LA-CHAPELLE, Bergman.

Temperature 143°
In each wine pint,
Sulphuretted hydrogen, 5·5 cubic inches

Carbonate of soda, - -	12· grain
Carbonate of lime, - -	4·75
Muriate of soda -	5·
	21·75

CHELTENHAM, Sulphur spring, Brande and Parkes

Specific gravity, - 1·0085
In each wine pint,
Carbonic acid, - 1·5 cubic inches
Sulphuretted hydrogen, 2·5

Sulphate of soda, - -	23·5 grains
Sulphate of magnesia. -	5·
Sulphate of lime, - -	1·2
Muriate of soda, - -	35·
Oxide of iron, - -	0·3
	65·

LEAMINGTON, Sulphur water, Scudamore.

Specific gravity, - 1·0042
Sulphuretted hydrogen, quantity not ascertained
In each pint,

Muriate of soda, - -	15· grain
Muriate of lime, - -	7·96
Muriate of magnesia, -	3·30
Sulphate of soda, - -	11·60
Oxide of iron, - - -	a trace
	37 86

MOFFAT, Garnet.

Nitrogen, - -	0·5 cubic inches
Carbonic acid, - -	0·6
Sulphuretted hydrogen,	1·2
Muriate of soda, -	4·5 grains

HARROWGATE WATER, New Well at the Crown Inn.

Specific gravity, - - 1·01286 at 69°
One wine gallon contains,

Sulphuretted hydrogen,	6·4 cubic inches
Carbonic acid, - - -	5·25
Azote, - - - -	6·5
Carburetted hydrogen, -	4·65
	32·8

Also, Muriate of soda, - -	735· grains
Muriate of lime, - -	71·5
Muriate of magnesia -	43·
Bicarbonate of soda, -	14·75
	864·25

Old Well,
Specific gravity, - 1·01324 at 60°

Sulphuretted hydrogen,	14· cubic inches
Carbonic acid, - - -	4·25
Azotic gas, - - -	8·
Carburetted hydrogen, -	4·15
	30·4

Also, Muriate of soda, - -	752· grains
Muriate of lime, -	65·75
Muriate of magnesia, -	29·2
Bicarbonate of soda, -	12·8
	59·75

III.—SALINE WATERS.

SEIDLITZ, Bergman.
Specific gravity, 1·0060
In a pint,

Carbonate of magnesia, -	2·5
Carbonate of ime. - -	0·8
Sulphate of magnesia, -	180·
Sulphate of lime, - -	5·
Muriate of magnesia, -	4·5
	192·8

CHELTENHAM, pure saline, Parkes and Brande.
Specific gravity, - - 1·010
In each pint,

Sulphate of soda, -	15· grains
Sulphate of magnesia,	11·
Sulphate of lime, - -	4·5
Muriate of soda -	50·
	80·5

LEAMINGTON, saline, Scudamore.
Specific gravity, - - 1·0119
In a pint,

Muriate of soda, - -	53·75 grains
Muriate of lime, - -	28·64
Muriate of magnesia, -	20·16
Sulphate of soda, -	7·83
Oxide of iron, - -	a trace
	110.38

LEAMINGTON, Lord Aylesford's spring, Scudamore.
Specific gravity, - - 1·0093
In a pint,

Muriate of soda, - -	12·25 grains
Muriate of lime, - - -	28·24
Muriate of magnesia, -	5·22
Sulphate of soda, - -	32·94
Oxide of iron, - - -	a trace
	78·07

BRISTOL, Carrick. Temperature 70°
Specific gravity, - 1·00077
In each pint,
Carbonic acid, - 3·5 cubic inches

Carbonate of lime, - -	1·5 grains
Sulphate of soda, - -	1·5
Sulphate of lime, - -	1·5
Muriate of soda, - -	0·5
Muriate of magnesia,	1·
	6·0

BATH, Phillips. Temperature 109° to 117°

Specific gravity,	1·002
In each pint.	
Carbonic acid,	1·2 cubic inches
Carbonate of lime,	0·8 grains
Sulphate of soda,	1·4
Sulphate of lime,	9·3
Muriate of soda,	3·4
Silica,	0·2
Oxide of iron,	a trace
	16·3

BATH, solid contents, Scudamore.

Muriate of lime,	1·2 grains
Muriate of magnesia,	1·6
Sulphate of lime,	9·5
Sulphate of soda,	0·9
Silica,	0·2
Oxide of iron,	0·01985
Loss, partly carb. of soda,	0·88015
	14·

BUXTON, Scudamore.

Specific gravity at 60°	1·0006
Temperature 82°	
In a wine gallon.	
Carbonic acid,	1·5 cubic inches
Nitrogen,	4·64
Muriate of magnesia,	0.58 grains
Muriate of soda,	2.40
Sulphate of lime	0·6
Carbonate of lime,	10·40
Extractive and vegetable matters	0·50
Loss,	0·52
	15·

Or according to Dr Murray.

Sulphate of soda,	0.63
Muriate of lime,	0·57
Muriate of soda,	1·80
Muriate of magnesia,	0·58
Carbonate of lime,	10·40
Extract and loss,	1·02
	15·00

MATLOCK BATH, Scudamore.

Temperature 68°	
Specific gravity,	1·0003
Free Carbonic acid	

Muriates and sulphates of magnesia, lime, and soda, in minute quantities, not yet ascertained.

IV.—CHALYBEATE WATERS.

TUNBRIDGE, Scudamore.

In each gallon,	
Specific gravity,	1.0007
Muriate of soda,	2·46
Muriate of lime,	0·39
Muriate of magnesia,	0·29
Sulphate of lime,	1·41
Carbonate of lime,	0·27
Oxide of iron,	2·22
Traces of manganese, vegetable fibre, silica, &c	0·44
Loss,	0·13
	7·61

CHELTENHAM, Brande and Parkes.

Specific gravity,	1.0092
In a pint,	
Carbonic acid,	2·5 cubic inches
Carbonate of soda,	0·5
Sulphate of soda,	22·7
Sulphate of magnesia,	6·0
Sulphate of lime,	2·5
Muriate of soda,	41·3
Oxide of iron	0·8
	73·8

BRIGHTON, Marcet.

Specific gravity,	1.00108
Carbonic acid gas,	2⅔ cubic inches
Sulphate of iron,	1·80 grains
Sulphate of lime,	4·09
Muriate of soda,	1·53
Muriate of magnesia	0·75
Silica,	0·14
Loss,	0·19
	8·50

HARROWGATE, Oddier's Chalybeate, Scudamore.

Specific gravity,	1·0053
In each gallon,	
Muriate of soda,	300·4
Muriate of lime,	22·
Muriate of magnesia,	9·9
Sulphate of lime,	1·86
Carbonate of lime,	6·7
Carbonate of magnesia,	0·8
Oxide of iron,	2·40
Residue chiefly silica,	0·40
	344·46

MOLASSSES OR TREACLE is the uncrystallizable part of the juice of the sugar cane, separated from the sugar during its manufacture. It is of the consistence of a thick syrup, has a peculiar odour, and a sweet empyreumatic taste, with a dark brown, almost black colour. It is admirably adapted for covering the taste of nauseous drugs, and in hospital and dispensary practice may and really does supersede the use of sugar in many instances. Some children are fond of it, and it is an excellent vehicle for purgative and anthelmintic powders, and it covers the unpleasant taste and flavour of infusion of senna even more effectually than sugar. Treacle beer should be kept in a cool place during summer, as it is apt to spoil and become acid and sour. When used along with oatmeal 'porridge,' or stir-about, it may be made either with or without the ginger, according to choice.

A very excellent, economical, and cooling summer's beverage may be made by fermenting treacle dissolved in boiling water, in which a portion of ginger may be infused. The same regulations may be followed as in the case of using sugar. But as the treacle is not so sweet as the sugar, or in other words, there is not so great a quantity of saccharine matter, about one-sixth more of weight of treacle may be used than is employed of sugar for the same purpose. The product has of course a darker colour, but it is equally safe and refreshing as an ordinary drink as the other, and rather a trifle cheaper.

MOLITIES OSSIUM. See *Rickets*.

MONKSHOOD, or *Aconitum Napellus;* ACONITE OR WOLFSBANE; in some parts of Scotland AARON'S BEARD. This plant is common in most flower gardens, and is a favourite ornamental flower especially in the gardens of the industrious classes. Its tall upright stalk bearing beautiful blue flowers, with a supposed resemblance to the hood or cap of a monk, forms a not uninteresting object in small rural gardens. It is in the Linnæan class *polyandria*, order *trygnia*, and in addition to its Linnæan name, is known by the different names at the head of this article. A coloured engraving will be found in our plate of indigenous or cultivated vegetable poisons. It is indigenous in Germany, and other parts of the continent, but our plant of home growth, in its every part, is equally virulent as a poison, especially the roots, as that which is imported from the continent; and although its leaves are

very acrid, and its roots not less so, instances of poisoning by swallowing too large a dose when administered as medicine, or mistaking the root for that of a harmless culinary vegetable, have sometimes occurred. When first chewed, it imparts a sensation of acrimony, followed by an insensibility or stupor at the apex of the tongue, accompanied by a pungent heat of the lips, gums, palate, and fauces, followed with a general tremor and chilly sensation. The fatal symptoms are nausea and violent vomiting, excessive purging, vertigo, cold sweats, delirium, and convulsions, which terminate in death. The juice of the plant applied to a wound will affect the whole nervous system, and some assert, that by keeping a bunch of the fresh cut plant in the hand for some time, unpleasant symptoms will follow. This, however, is not an effect peculiar to aconitum, as the leaves of tobacco and other narcotic plants externally applied, even on an entire skin without wound or blemish, will produce the most alarming symptoms. The effects produced on the human body by this poison, where death has ensued, is slight inflammation of the stomach and intestines, its effects appearing to depend altogether on its action on the nervous system.

The mode of treatment to be pursued is to evacuate the stomach as quickly as possible, by administering half a dram of the sulphate of zinc concealed in a little jelly or jam or conserve of roses, and then give a cup of chamomile tea or tepid water. When the emetic has operated, give freely acidulated drinks, with mild cordials, such as strong lemonade, or vinegar and water with sugar; a tea spoonful of brandy or good whisky or rum in each cupful of the acidulated drink. At the same time the castor oil and turpentine enema may be administered; and if the bowels are deranged, or much diarrhæa present, forty drops of laudanum may be added to the enema. When the most alarming symptoms have disappeared, strong beef tea or chicken broth, in which has been boiled a few whole pepper corns, may be given in doses of a cupful every two hours, and good strong coffee as ordinary drink.

As to a test for the discovery of this poison, there is none; and indeed the same may be said of almost every other vegetable poison taken in its natural state. The aconitum napellus or monkshood is, however, a most valuable remedial in the cure and relief of several diseases, especially acute and chronic rheumatism, scrofulous swellings, venereal nodes, schirrus, palsy, amaurosis, and other diseases. It is, however, in rheumatic affections it has especially of late acquired so much celebrity. It is administered in the form of powder of the dried leaves, in doses of one grain twice or thrice a-day, gradually increased to five, and in the form of extract or inspissated juice, as directed by the Edinburgh and London colleges; but the formula directed by these colleges in their pharmacopeias, appears to be inferior to the alcoholic or spirituous extracts used by the continental physicians, and which can be easily procured in this country. Indeed, if we can believe the testimonies of Dr Lombard, physician to the civil and military hospital at Geneva, Dr Gentrae, and others, on the effects of this preparation of aconitum, in almost every variety of rheumatism the sufferers from that distressing disease have good right to congratulate themselves on the discovery of a medicine which seldom fails to remove the most obstinate cases in a comparatively short period. Its efficacy depends on the presence of a principle denominated aconitine, a most powerful poison, but which, when diluted and formed into an ointment, has been used with success by Dr A. Turnbull, in tic douloureux and other nervous affections. In tic douloureux a small portion of the ointment is rubbed over the affected part, and continued till the pain abates. Were we suffering from rheumatism, we should certainly try the alcoholic extract of aconitum, as a remedy likely to afford relief, and we would advise rheumatic patients to suggest its trial in their own cases to their medical attendant. See *Rheumatism* and *Tic Douloureux*.

MORTIFICATION. See *Gangrene* and *Inflammation*.

MUCILAGE. A thick glutinous liquid, made by dissolving gum Arabic, or any of the other gums in boiling water, or by boiling or infusing in water the roots, seeds, or leaves of plants which contain it, and then straining off the liquid; thus making what are termed mucilaginous or demulcent drinks. See *Domestic Pharmacopeia*.

MUCUS. A thick viscid substance secreted by the various mucous surfaces of the body. When the mucous membrane is irritated, the quantity of mucus secreted is larger, and it is thinner; and in cases where the mucous membrane is inflamed, it presents somewhat the appearances of pus, being then termed muco-purulent. This change in the appearance of the mucous secretion is seen in cases of gonorrhæa, purulent ophthalmia, and in severe cases of bronchitis.

MUMPS. This term is used to denote inflammation and swelling of the parotid gland, which is the largest of the salivary glands, and situated immediately in front of the ear, being deeply nitched in between it and the ascending branch of the lower jaw bone, and extending down below the ear. When inflammatory swelling of this gland takes place, it is generally preceded and accompanied by a degree of general fever; there is swelling over the side of the face painful to the touch; and the pain is greatly increased on attempting to chew, as may readily be conceived when we recollect the close connection of the inflamed gland to the lower jaw-bone.

If the pain be very severe, leeches should be applied at first, followed by warm fomentations, with a solution of muriate of ammonia; and afterwards gentle frictions, with warm camphorated spirits or oil, should be used to allay the swelling; the general fever being at the same time treated by acting on the bowels, and promoting gentle perspiration. The patient should be fed on spoon meat, such as thin arrow-root and the like, to prevent the necessity of chewing. If, however, the disease, in spite of these measures, goes on to suppuration, as it often does in scrofulous constitutions, the swelling must be carefully watched, and an early opening made into it as soon as there is reason to believe that matter has formed, because, from the strong membrane covering the gland, the matter is prevented from coming to the surface, and may cause serious mischief if not evacuated early. When the matter has been evacuated, poultices and slightly stimulating dressing are required, together with generous diet to support the patient's strength.

MURIATIC ACID OR SPIRIT OF SALT, or, as it is denominated in the last London pharmacopeia, HYDROCHLORIC ACID. This acid, like the other mineral acids, is never prepared by the retail apothecary, but prepared on a large scale by the manufacturing chemist; the proportion that is used in medicine being extremely trifling to that which is used in the arts and manufactures. It is distilled from a mixture of diluted sulphuric acid and common salt. This acid possesses an intensely acid and caustic taste, with a suffocating odour. Its colour is commonly of a pale yellow, but when pure and recently made, it is nearly colourless, and gives out volatile visible fumes. Its effects are antiseptic, diuretic, and tonic, and when diluted, it is used to acidulate drinks in typhus and other febrile diseases, and is mixed with gargles in inflammatory and putrid sore throats. It is also used both externally and internally in diseases of the skin. The proportions of the London pharmacopeia for the diluted muriatic acid is four fluid ounces of the acid mixed with twelve fluid ounces of distilled water; and the dose of this diluted acid is from ten to twenty drops in a large wineglass or tea cupful of water. This acid enters into many officinal compositions, which will be found under their respective heads. This acid, in conjunction with the nitric acid, has lately been recommended as a bath by Dr Scott, Dr James Johnston, and others, in certain nervous and bilious affections. It is prepared as follows. Into a glass vessel capable of holding a pint or more of fluid, put eight ounces of water (half a pint), and then pour in gradually four ounces of nitric acid of the strength ordered in the pharmacopeias, and four ounces of muriatic acid. This mixture may be labelled 'the nitric muriatic solution,' and one ounce and a half to a gallon of warm water will form a bath of medium strength. The proportion may be increased to two ounces, or diminished to half an ounce of the solution to the gallon of water, according to the age, strength, delicacy, or other peculiarity of the patient. A bath of two gallons and a half is generally sufficient for the feet and legs. A narrow and deep wooden bucket is best, such as will bring the water well up to the knees, without requiring more than eight or ten quarts of liquid. The feet and legs of the patient ought to be immersed in this bath at a comfortable warm temperature, say 96 degrees, and kept there twenty minutes or half an hour, just before going to bed. This may be done every night or every second night, and the same bath will remain good for three or four nights. It ought to be kept in the wooden bucket, and a fourth part or so warmed up every time it is used, in a well glazed earthen vessel, and added to the rest, which will make the whole of a sufficiently warm temperature. The best way of warming the liquid is to adopt a stoneware basin or bowl to the top of a sauce-pan, as directed in the preparation of honey, &c.; or a fourth part of the bath may be thrown away, and a fourth part of fresh boiling water added, and an ounce of the nitro-muriatic acid solution, which will obviate the possibility of any decomposition taking place by glazed vessels; but indeed no inconvenience need be apprehended by warming up a part of the bath as above recommended. Dr Scott thinks that spunging the skin with the bath is equally good as immersion, and that whether cold or hot, the effects would be the same. In this last, says Dr Johnson, I am very far from agreeing with him, and give a decided preference to the warm foot bath, or warm spunging, for very many reasons, which need not now be explained.' In these observations, our own experience warrants us in supporting the opinions of Dr James Johnson. The strength of the bath must be regulated by the degree of irritability of the patient's skin. It ought in general to cause a prickling sensation when the immersion has continued a quarter of an hour. The patients usually observe that their feet and legs continue warm, and even in a perspirable state, the whole night afterwards. When the feet and legs have been immersed in the warm bath for twenty-five minutes, the upper part of the body is to be stripped, the lower extremities still continuing in the bath, and the body and upper extremities well spunged, keeping up the temperature by fresh additions of the warm liquor, in proper proportions, from the basin heated by the steam of the sauce-pan. The body is then not to be rubbed dry, but patted with a stout soft linen towel, applied very quickly, in the same manner as a spunge is applied to absorb any moisture from the surface. More than one assistant

should be employed in this operation; clean, well aired body clothes put on, and the patient put to bed.

'When carried to a considerable extent, so as to bring the system under its influence,' says Dr Johnson, 'it occasionally induces faintness, and a degree of nervous irritation or restlessness, and sometimes a coppery taste in the mouth, and an increased discharge of saliva, but without the mercurial fætor of the breath. These effects are very fugitive and uncertain. I have known it produce a general itching all over the body; in some cases a considerable degree of pain in the soles of the feet. In a few cases a papular eruption over the whole skin succeeded.'

'The nitro-muriatic acid bath,' says Dr Scott, 'appears in a particular manner to affect the glands, and to alter their secretions; and on this power a great part of its value in derangements of the liver seem to depend. It sometimes very suddenly increases the secretion of bile, and this effect may be kept up for a length of time. It increases the perspiration, and often to a great extent. The almost instantaneous effects that it produces on some people, and its suddenly causing a flow of bile, are all unlike a remedy that is conveyed by the known channels of absorption. I can suppose that the effects of this remedy do not arise from the transfer of this matter by any set of vessels, but that they are the consequence of peculiar motions, which it has the power of exciting in the solids and fluids of the body.'

Indeed, there is no doubt that this bath promotes the action of that sympathy which so extensively and intimately exists between the skin and the liver, and which has been so well described by Dr Johnson under the name of cutaneo-hepatic sympathy. There is, therefore, a numerous class of complaints to which the nitro-muriatic acid bath is applicable, and in which it has often been used by the profession with decided advantage. It would, however, be out of place to enter into a consideration of these under this head. They will be found fully considered under their respective appellations, and the application of this bath considered in reference to each. See *Scott's Acid Bath*.

Muriatic acid, or spirit of salt, is, like the other mineral acids when employed in an undiluted state or improper dose, a powerful corrosive poison, and as it is so frequently employed in the arts and manufactures, it is very likely to be swallowed through carelessness or mistake.

The symptoms it produces are a styptic taste in the mouth, a burning sensation in the throat, æsophagus, and stomach, with great thirst and redness of the eyes; the skin is hot and dry, and the pulse tense and frequent; the lips are black, the tongue red and glossy; there is vomiting of blood and yellow matter, having the pungent odour of the acid; and cold sweats, delirium and death, if immediate relief is not afforded speedily, close the scene. Indeed, these are the symptoms which in general follow the improper use of all the mineral acids; but Orfila says, that when muriatic acid is the poison, a thick white fume of a sharp penetrating odour, similar to that exhibited by the acid, issues from the mouth. This last, where none of the acid is left, is perhaps the only test by which an unprofessional attendant could detect the precise nature of the poison. The havoc committed by this and the other mineral acids on the human frame, when they act as poisons, will be found detailed under the heads of *Acid, Nitre, Sulphuric Acid*, &c.

The treatment is much the same as that employed in the above named acids, viz., speedy dilution by soap and calcined magnesia mixed in bland fluids, such as lintseed tea. These should be poured down the throat in great quantities. A half a pound or even a quarter of melted butter should be administered as an enema, or equal parts of melted butter and sweet oil of a proper temperature. If inflammatory symptoms ensue, they are to be moderated by bleeding and the cooling antiphlogistic regimen so frequently detailed under the head of other poisons in this work. The muriatic acid is so frequently used for the extraction of iron moulds and ink spots, that the name should always be pasted on the vial, and in addition the word Poison.'

MURIATE OF AMMONIA, or *Sal Ammoniac*. This salt of ammonia is used in medicine in the form of solution warm, as a stimulant and discutient to tumours, bruises, inflammatory swellings, &c., and is supposed to be very efficacious in preventing the formation of pus. It is also used in the same cases as a refrigerant discutient. When it is used warm, as in the case of inflammatory swelling, it is well to combine it with opium. The strength of the solution is generally about a dram to twenty-two ounces of water.

MURIATE OF LIME. This medicine was at one time used extensively in cases of scrofula, in doses of from twenty to sixty drops in water, twice a-day; but it possesses little real value, and is now superseded by the preparations of iodine and other active remedies.

MUSCLES. Under this name are included those parts that consist of distinct portions of flesh, susceptible of contraction and relaxation. The general distinctions of the muscles are various, depending on their structure and uses. Thus, if the fibres of a muscle are placed parallel to each other in a straight direction, they form what anatomists term a rectilinear muscle; when the fibres are disposed in the manner of rays, a radiated muscle; if the fibres cross and

intersect each other, they constitute a compound muscle; when they are placed obliquely with respect to the tendon like the plume of a pen, a penniform muscle. Muscles, as we shall afterwards see, that act in opposition to each other, are called antagonists; thus, every extensor has a flexor for its antagonist, and vice versa. Muscles that concur in the same action are termed congeners. Muscles being attached to the bones, the latter may be considered as levers that are moved in different directions by the contraction of these organs. That end of the muscle which adheres to the most fixed part is usually called the origin; and that which adheres to the more movable part, the insertion of the muscle. In almost every muscle two kinds of fibres are distinguished; the one soft, of a red colour, sensible, and irritable, called fleshy fibres; the other of a firmer texture, of a white glistening colour, insensible, without irritability or the power of contracting, are named tendinous fibres. They are occasionally intermixed, but the fleshy fibres generally prevail in the belly or middle part of the muscle, and the tendinous ones in the extremities. If these tendinous fibres are formed into a round, slender arc, they form what is called the tendon of the muscle. (See *Tendon.*) On the other hand, if they are spread into a broad flat surface, it is termed an aponeurosis, or tendinous expansion. A muscle, or indeed every muscle, is surrounded by a very thin and delicate covering of cellular membrane, which incloses it, as it were, like a sheath, and dipping down into its substance, surrounds the most minute fibres we are able to trace, connecting them to each other, lubricating them by means of the fat which its cells contain in more or less quantity in different subjects, and serving as a support to the blood-vessels, lymphatics, and nerves, which are so plentifully distributed through the muscles. The red colour which so particularly distinguishes the belly part of the muscle, is owing to an infinite number of arteries which are every where dispersed through the whole of their reticular substance; for their fibres, after having been macerated in water, are like all other parts of the body, divested of their red colour. These blood vessels usually enter the muscles by several considerable branches, and ramify so minutely through their substance, that their ultimate branches cannot be traced even by aid of the best microscopes. Indeed, some anatomists have fancied that the muscular fibre was hollow, and a production of a capillary artery; but this was merely conjectural. The veins for the most part accompany the arteries, but are found to be larger. The lymphatics likewise are numerous, from the great proportion of reticular substance which is every where found investing the muscular fibres. The nerves are distributed in such abundance to every muscle that Dr Hooper asserts 'that the muscles of the thumb alone are supplied with a greater proportion of nervous influence than the largest viscera, as the liver for instance. They enter the generality of muscles by several trunks, the branches of which, like those of the blood-vessels, are so minutely dispersed through the cellular substance, that their number and minuteness soon elude the eye and the knife of the anatomist. This has given rise to a conjecture as groundless as all the other conjectures on this subject, that the muscular fibre is ultimately nervous.

Muscles in general are pairs with a very few exceptions, such as the cellular muscle of the mouth, and their number has been estimated at two hundred and eighty-nine, but as they are the same on both sides, this must be doubled, which makes five hundred and seventy-eight, an enumeration which is pretty nearly correct. All animal motion is effected by muscles, and they are divided into two great classes, the voluntary and involuntary. Those under the influence of the will, as the muscles of the arm and leg, &c., the motions of which in a healthy state are subject to the will, and for this reason they are called voluntary muscles. Besides these there are other parts of the body that owe their power of contraction to their muscular fibres, and whose action is independent of the will; thus, the heart, a muscular texture, forming what is called a hollow muscle, for the purpose of receiving the blood and propelling it by means of arteries to all parts of the body and urinary bladder, which receives and expels the urine, the stomach, intestines, &c., are enabled to act upon their contents merely because they are provided with muscular fibres; these are, therefore, all denominated involuntary muscles, because their motions are not dependent on the will. Each muscle, as already observed, has an antagonist muscle, or one that acts in a direction contrary to the other; one muscle throwing the arm out, which is called the extensor, the other bends the arm, and is called the flexor; one muscle relaxes, while the other contracts. Nothing is satisfactorily known about muscular contraction; this physiological question is not decided. We have likewise already stated that the muscles are most abundantly supplied with nerves or small white cords, which arise from the brain and spinal marrow, and communicate nervous energy. We know nothing, however, of the nature of this nervous principle or fluid, as it has been sometimes called, circulating in nerves; we can only witness its effects. That nervous energy is necessary to healthy performance of the functions of muscles, and of the other functions of the body, there can be no doubt, as digestion, secretion, sight, hearing, smelling, tasting, &c., cannot be effected if the nerve of communication between their

respective functions and the brain be divided.

The muscles and their tendons are not only constitutionally endowed to generate and regulate motion, but also differently constituted, as we have already seen, for these purposes, according to the movement required and the instruments used. For example, at the knee and elbow, where the joint is large, which serves only to move the limb in the same plane, the tendons are placed parallel to them, and lengthen or shorten in that direction; but in the hip and shoulder, where the ball and socket joint is found, the muscles are variously placed, and are capable of contracting and restoring themselves in each position. The muscles, also, by their different directions, support the bones, particularly the head, and all the limbs are regulated in their movements chiefly by their agency. The vast importance, too, of the antagonist muscles must be apparent to every reflecting observer of the motions of his own body. An antagonist muscle is one that acts in a direction contrary to the other, for the muscles cannot expand beyond their natural size; though they cannot contract, therefore, to produce a contrary motion, another muscle must be called into action, and it is by this contrary motion of the muscles of the face that the features are duly balanced in their places. This is very easily discovered in the countenance of a person whose antagonist muscles of the face have been deprived of their energy by palsy or other disease. The natural strength of the muscles may be either increased or diminished by exercise; for we perceive the legs of a dancing master, the arms of a pugilist, sailor, waterman, or blacksmith, are stronger by use. All the limbs of the body are levers of the third class, for the resistance must be farther from the prop than the power, the power being in the joint itself. Did our limits permit, or the nature of our work demand it, we could adduce numerous instances of the most wonderful and wise adaptation of the muscles of the human body for those purposes for which they are intended. Let, however, the beautiful instance of mechanical advantage or lever power in the lower jaw suffice. The temporal and masseter muscles pull almost directly at right angles to the line of the jaw, while in most other cases, as in that of the deltard muscle lifting the arm, the muscles act obliquely, and with intensity diminished in proportion to their obliquity, a substance placed between the back teeth is compressed with the whole direct power of the strong muscles of the jaw, and hence the human jaw can crush a body that resists with great force. In our plate, the outer layer of muscles are seen in three views, viz., an anterior or front view, a posterior or back, a lateral or side view. With the aid of these figures, an attentive consideration of this article in connection with the description of particular muscles, with their actions, &c., will, we hope, enable the general reader to understand what is meant by the muscular system of the human body, and to form some idea of its astonishing fitness for the performance of those functions it is destined to perform in the animal economy. We have great pleasure in referring the general reader to a Lecture illustrative of the Architecture of the Human Body, by H. W. Dewhurst, Esq., London, and to Paley's Natural Theology, with Notes, by Lord Brougham and Sir Charles Bell, and Sir Charles's Bridgewater Treatise on the Hand.

The following tables of reference will explain the position of the different muscles of the body, represented in our plate :

Fig. 1st.
1. Frontales
2. Orbiculares palpebrarum
3. Zygomaticus
4. Levator labii superioris alæque nasi
5. Depressor labii superioris
6. Depressor anguli oris
7. Platisma myoides
8. Pectoralis major
9. Latissimus dorsi
10. Serratus magnus
11. Obliquus externus abdominis
12. Rectus abdominis
13. Pyramidales
14. Linea alba
15. Gracilis
16. Triceps adductor
17. Pectineus
18. Psoas magnus
19. Iliacus internus
20. Sartorius
21. Gluteus medius
22. Tensor vaginæ femoris
23. Vastus externus
24. Rectus femoris
25. Vastus internus
26. Biceps
27. Gastrocnemius
28. Soleus
29. Peroneus longus
30. Extensor longus digitorum pedis
31. Tibialius anticus
32. Deltoides
33. Triceps
34. Biceps
35. Brachiæus
36. Supinator longus
37. Pronator radii teres
38. Flexor carpi radialis
39. Palmaris longus
40. Flexor sublimis
41. Flexor carpi ulnaris
42. Extensor longus pollicis
43. Extensor carpi radialis longior

Fig. 2nd.
1. Temporalis
2. Mastoidæus
3. Trapezius
4. Deltoides
5. Brachiæus
6. Gemellus
7. Palmaris longus
8. Sublimis
9. Ulnaris externus,
10. Radialis externus longior
11. Extensor communis digitorum
12. Infraspinatus
13. Latissimus dorsi
14. Obliquus externus abdominis
15. Glutæus medius
16. Glutæus major
17. Gracilis
18. Adductor magnus femoris
19. Semitendinosus
20. Biceps cruris
21. Vastus externus
22. Gastrocnemius
23. Soleus
24. Tendo Achillis

MUSK, or *Muschus*. Musk is an animal substance found in a fallice situated in or on the abdomen of the musk deer, or *muschus moschi-*

ferus, an inhabitant of the most elevated region of Asia, particularly of the Atalantyan Alps. Though this animal is gentle and timid, its chace is difficult and dangerous; it is about three feet in length, and in its general form resembles the deer tribe. In the male, behind the navel, and before the pressure, there is situated an oval bag, flat on one side, and convex on the other, about three inches long and two broad, projecting about an inch, and having a small open orifice beset with short hairs. In the young animal it is empty, but in the adult it is filled with a secreted matter called musk. When this bag becomes too full, the animal expresses part of its contents by rubbing itself against stones or trees. The musk expressed this way is said to be the purest, but little or none of it reaches this country in such quantities as to be offered for sale. It is imported into England from China, an inferior kind from Bengal, and a still coarser kind from Russia. Being a very expensive article, it is much adulterated. That which is mixed with the animal's blood may be discovered by the largeness of the lumps or clots; it is sometimes mixed with a dark highly coloured friable earth, but this appears to the touch to be of a more crumbling texture, and is harder as well as heavier than genuine musk. In fine, the high price affords such a temptation, that every scheme is tried to adulterate. The following are the most common modes of detection:—The musk bag should have no appearance of being opened; the presence of dried blood is known or may be suspected by its emitting, as it inflames, a fœtid smoke; asphaltum is discovered by its melting and running before it inflames. The artificial bags are known from the deficiency of the membrane which lines the real musk bags. Fine particles of lead are frequently added to increase the weight, and are easily detected, as by rubbing the musk with water, the metallic particles will subside.

The following are the properties of genuine musk:—It has a strong, durable, and peculiar aromatic odour, which, if once felt, can never be mistaken; a dark reddish brown colour; a bitterish taste; and a slightly unctuous feel, partially soluble in water, yielding to it its taste and smell; soluble in alcohol and sulphuric acid, with the loss of its odour. Musk is still believed by some to be a medicine of very great efficacy, while others think its virtues imaginary, and consider its high price as its only recommendation for admission into the materia medica. There are indeed high authorities on both sides. It is by its admirers considered to possess antispasmodic, diaphoretic, and stimulant properties. It was employed in typhus fever as early as the time of Mead. Sir John Pringle administered it in gout of the stomach; a practice which was approved of by Cullen. Combined with ammonia, it has been celebrated for its powers in arresting the progress of gangrene, and of imparting fresh excitement to the nervous system in spasmodic affections, as hysterica, hooping cough, locked jaw, and epilepsy. Dr A. T. Thomson says he has seen it, when given to the extent of half a dram three times a day, stop the fits, and in an old and confirmed case of epilepsy for three months. In cholera, it checks the vomiting, and it raises the pulse, and excites the nervous system without heating. It may be given in the form of powder made into a bolus, in doses of from two grains gradually increased to a dram. A mixture is ordered by the London college, and a tincture by the London pharmacopeia; the Edinburgh college having no formula for musk. The musk mixture is prepared as follows:

Musk.
Powder of gum Arabic.
Refined sugar, each one dram.
Rose water, six ounces.

Rub the musk with the sugar in a glass or Wedgewood mortar, then add the gum, and by degrees the rose water, continuing the rubbing till the mixture is formed.

This mixture is given in doses of from half an ounce to two ounces every four or five hours, and is a convenient form of employing musk. The late Mr White of Manchester, no mean authority, found this musk mixture combined with half a dram of carbonate of ammonia, a fluid dram of spirit of lavender, and an ounce of spirit of juniper, (Holland's) of great utility in sloughing phagedenic ulcers of a syphilitic and strumous nature.

Tincture of Musk

Musk reduced to powder, two drams.
Rectified spirit, one pint.
Digest for seven days, and strain.

Dr Duncan remarks, that rectified spirit is the most complete menstruum for musk, but that in this form it is often impossible to give a sufficient quantity. The dose of the tincture is from a dram to half an ounce. It may likewise be given in the form of bolus, combined with ammonia or camphor, &c. Musk is indeed a powerful stimulant, and is sometimes very useful; but until men or the dealers in musk become more honest and less avaricious, or the article become cheaper, it will always be an uncertain medicine, for we have used musk having all the appearance of being genuine, without having any visible affect, while at other times, preparations of musk apparently inferior have produced the best effects. The last wholesale monthly list of drugs on sale in the English market we consulted, (1838), stated the price of China musk to be from £1 to £1 8s. per ounce in bond, and the duty 6s.! as if it were not expensive enough. The Chancellor of the Exchequer knows, however, that musk is more used as a perfume than as a medicine.

MUSTARD, or *Sinapis Alba*, or WHITE MUSTARD, and COMMON or WILD MUSTARD, the *Sinapis Nigra*. Both the white and black mustard are recognised by the colleges as articles of the materia medica, and they are much better entitled to the place than many foreign and expensive plants, which find a place in the same list. Decorticated or freed by machinery of the scale or husk, the seeds are ground into powder, and used as a common condiment with animal food at our tables, and the same powder is employed for forming sinapisms, so often recommended in the pages of this volume. The seeds, too, furnish a considerable quantity of bland limpid oil, entirely void of acrimony, and may be used for a variety of medical and domestic purposes. The powder infused in water, acts as an emetic, and is both safe and efficacious. Half an ounce or an ounce may be infused in a pint of hot water, and drank in divided doses of a small cupful every fifteen minutes, till vomiting is produced; some even go so far as drinking half a pint or a pint at once. In small doses of a cupful repeated every two hours, the same infusion proves diuretic and aperient. The mustard loses nothing of its pungency by the extraction of the oil, but the seeds of the black mustard are considered preferable for table mustard, and likewise for sinapisms.

The white mustard seed swallowed whole, without being bruised or masticated, acts as a powerful stimulant to the stomach, and has been celebrated in cases of indigestion, in doses of a tea spoonful moistened with cold water, and taken every morning fasting. It moves the bowels, but in many individuals produces a disagreeable tenesmus, or frequent desire of going to stool. In the same manner it is used as an emenagogue, and when taken for this purpose, a tea spoonful may be taken night and morning for four or five days previous to the usual time of menstruation, and likewise during its continuance. The mustard seed is best fitted for cases of indigestion, in chronic rheumatism and gouty affections, and in such cases it frequently performs wonders.

The mustard sinapism or cataplasm may be made by mixing equal parts of the table mustard, and either oat, barley, rye, or lintseed meal, or crumb of bread, and vinegar or water, of the consistence of thick honey or stirabout. If a very quick action is required, two parts of the mustard, and only one of either of the other ingredients, need be used. The mode of application may be learned under those heads where it is recommended to be used as an active remedial agent in the cure of disease. The cataplasm may be put in a thin lena mull muslin, or very thin calico bag, or made of an old thin white neckcloth, or coarse thin cotton lawn. It should be of from a half inch to an inch in depth, as if thinner it very speedily dries, and does not so readily act on the skin. Very few persons are equal to the endurance of a sinapism properly prepared of good mustard, longer than an hour or even half that period. When a sinapism is applied to children, or individuals of a delicate skin, two parts of meal and one of mustard need only be employed. The tender leaves of mustard, indeed the whole plant, is used as a salad, when two inches in length. It is well suited for the purpose.

MYRRH, or *Myrrha gumma resina*. Myrrh exudes from the bark of the *Balsamodendron Myrrha*, a shrubby tree growing in Gison, on the borders of Arabia Felix, and likewise in Abyssinia. The botanical character of the plant is not yet fully known, as no European botanist has seen the flowers. The myrrh is at first oily and of a pale yellow colour, but by drying, becomes harder, darker, and redder.

Myrrh is one of the most ancient articles of commerce with the Oriental and Eastern nations, and is mentioned in the book of Genesis, being termed in the Hebrew language *Mur*, in allusion to its bitterness. There is a great variety in the qualities of the myrrh sold in the shops, and three distinct kinds are known in commerce. What is called Turkey myrrh is the best, and was formerly imported from that country, but at the present time almost all the myrrh used in Britain is imported from India. Even in parcels of the first quality very impure pieces are met with, and the best pieces are picked out and sold under the name of picked myrrh. The colour varies, being pale, reddish, yellow, red, or reddish brown. The pieces are fragile, semi-transparent, with a dull, in part splintery kind of fracture. The odour of myrrh is aromatic and balsamic, peculiar, but to most persons pleasant. The taste is bitter, acrid, and aromatic. The second quality consists of distinct tears or grains, from the size of a pin's head to a pepper corn. They are shiny, more or less transparent, and vary in colour from pale or whitish yellow to reddish brown, and appear as if they were the siftings of the best myrrh. The third quality is called East India myrrh, although all the kinds are imported from thence. It occurs in pieces of a darker colour than those of the first or so called Turkey myrrh, and whose average size does not exceed that of a walnut, and we are sorry to find that this is the only myrrh to be met with in most retail drug shops.

This ancient and valuable drug yields a volatile oil, resin, gum, and salts of potash and lime, in various combinations. Myrrh has long been regarded as stimulant and expectorant, and from various articles in this work, it will be found to be employed in the cure or alleviation of cachetic complaints, humoral asthma, chronic catarrh, and pulmonary consumption unattended by inflamma-

tion, especially in the form of Griffith's mixture, (which see) and combined with sulphate of iron in suppressed menses, as in the compound iron pills. (See *Iron.*) It is given in substance in the form of powder, or made up into pills in doses of from ten grains to a dram; and it enters into a great variety of preparations in the pharmacopeias, some of which bear its name, and other compounds take its name in partnership with others.

Tincture of Myrrh.

Myrrh bruised, two ounces.
Rectified spirit, one pint.
Water, half a pint.
Macerate for fourteen days, and strain.

One pint and half of good proof whiskey will answer equally well, or brandy, or even rum of the same strength, where they are to be had cheap. This tincture is a most useful preparation, and is most frequently used externally for cleaning foul ulcers, promoting the exfoliation of carious bones, as a wash for the mouth when the gums are spongy, and the teeth loose. It is likewise used as a gargle in ulcerated sore throat, combined with infusion of roses. It may likewise be used internally in doses of a tea spoonful three times a day in penny-royal water, during the time of menstruation, when the discharge is too scanty.

Tincture of Aloes and Myrrh, sometimes called the Tincture of Myrrh and Aloes.

Myrrh bruised, one ounce.
Socotrine aloes in coarse powder, six drams.
Saffron, half an ounce.
Rectified spirit, or other spirit, as above directed for the simple tincture, one pint.
Macerate for seven days, and strain.

This has been long celebrated as a warm purgative, and as an emenagogue to open the bowels in cold languid habits, and suits the aged who are not afflicted with piles. As a purgative, it may be taken in doses of from two to four drams, and in doses of two drams taken at bed-time in peppermint tea or water. During difficult or scanty menstruation, it will often be found highly advantageous. It is often applied to recent cuts or wounds as a substitute for Friar's balsam, and a very good one it is. (See *Benzoin.*) And likewise to wash ulcers, &c., but it is too bitter as a gargle.

N

NAPHTHA. A native combustible liquid, occurring in springs on the shores of the Caspian sea. Naphtha has a disagreeable pungent smell, and burns with a white flame, giving out much smoke. According to Thomson its component parts are—

Carbon, - - - - - - -	82·2
Hydrogen, - - - - - -	14·8
Deficiency supposed to be azote, -	3·0

From its containing no oxygen, it is used in preserving the metallic bases of the alkalies. A species of naphtha, in every respect similar, is now obtained by distillation from coal tar. It has the property of dissolving India rubber, and hence is employed in the manufacture of air-tight tubes, waterproof or Mackintosh cloth, &c.

NARCOTICS. Narcotic medicines are those which act upon the nervous system, diminishing its powers, and so producing alleviation of pain, or irritation, or sleep. These medicines are also termed anodynes, soporifics, and sedatives. As far as our present knowledge goes, we are not possessed of any direct sedative remedy; all act in the first instance as stimulants, and secondarily as sedatives; but the excitement produced in the first instance is in general only slight and transient, and bears no proportion to sedative or calming effects which follow, so that for all practical purposes they may be considered as simply sedative in the generality of cases. We say, in general, because in some individuals the exhibition of opium or other remedies of this class, is followed by symptoms of great excitement, accompanied by heat of skin, restlessness, or even raving. It is worthy of observation, that when a particular narcotic fails in producing the desired effect, or is found to increase the irritability of the patient, that another remedy of the same class, or even a different preparation of the same medicine, will be found perfectly successful, and without being attended with any troublesome symptoms. For example, many persons cannot take an ordinary dose of laudanum without suffering from headache and nausea, whilst the exhibition of muriate of morphia or the black drop, or of extract of hyosciamus, (henbane), will frequently be found to afford relief. The principal narcotics are opium, hyosciamus, camphor, Belladonna, hemlock, foxglove, and stramonium, to the articles on which we refer our readers.

NAUSEA. Sickness, with inclination to vomit. Nausea is accompanied with a feeling of loathing, paleness of the countenance, quivering of the lips, and a discharge of clear watery

fluid from the mouth. Nausea often occurs from sympathy, as in injuries of the brain, inflammation of the kidneys, swelled testicle, &c. As it is rather a symptom than a disease, the indication is to remove the original cause; thus, in cases of surfeit, or in bilious attacks, vomiting may be favoured, and then the bowels cleared out; but where the nausea continues violent, it may often be relieved by the exhibition of effervescing draughts, bitters, or by an opiate after the bowels have been previously acted on. During the continuance of nausea, there is great depression of the vascular system, and hence it becomes useful in many diseases of a febrile and inflammatory nature, or in cases of disease of the heart, &c., to induce a degree of nausea for the purpose of diminishing the force of the circulation. This is best done by giving emetic tartar in small doses, repeated at intervals, so as to keep up a degree of nausea, without inducing vomiting; and this method, when followed in inflammatory diseases, after a copious bleeding so as to prevent immoderate reaction, will often preclude the necessity of having recourse to repeated bleedings. A formula for a nauseating mixture will be found in the domestic pharmacopeia appended to this work.

NAVEL. A depression near the centre of the abdomen, marking where the navel cord or vessels from the afterbirth entered the fœtus, and by means of which it was nourished from the mother. See *Circulation*.

NEAR-SIGHTEDNESS, also termed *Myopia*. This affection seems to be a natural effect of the condition of the eye, by which its refractive powers are too considerable, and the rays of light are brought to a focus sooner than they ought to be, so that they diverge, and are scattered again before striking on the retina, and thus indistinctness of vision arises. This state of the eye requires optical aid, in the form of concave glasses, to assist the individual in viewing remote objects. A person so affected is able to see all objects well that are near to the eye; in fact, he can see them when much nearer than the distance at which they can be observed by others, the refractive powers of his eye being stronger than in those of most individuals; but he loses the sight of distant objects. A near-sighted individual cannot see the countenances of persons in a large room, cannot distinguish the features of a preacher in the pulpit, cannot describe pictures if they be hung at a certain height, and for all these and other purposes concave glasses are required. This is a defect of vision found in young persons, perhaps at from fourteen to eighteen years of age, and frequently several years earlier they first begin to detect it, and not liking the idea of wearing glasses, they sometimes injure the eye by overstrained exertions. Glasses may, however, be worn in this case, without any injury to the sight, or producing any permanent ill effect on the organ of vision, which is not the case when glasses are worn by youths as a matter of fancy or puppyism, which they too often are. It is better, however, that a near-sighted person should use such glasses as will enable them to see objects without any unpleasant effort of the eye. They will do better with assistance of that kind than by attempting to strain the eye without it. It should be observed, however, that they ought to use glasses that will just enable them to see easily and clearly, and not to employ one that will occasion any fatigue to the eye. With a glass of the latter kind, he will be enabled to see objects better than with one of another sort; but if it produce any uneasiness about the eye, it is a clear proof that the instrument is too powerful, and would certainly injure the sight.

NECROSIS. This term, according to its etymology, has nearly the same signification as mortification, but by the general consent of surgeons, it is now employed exclusively to signify the death of bone. The death of parts of bones was not distinguished from caries by the ancients, but as much difference exists between necrosis and caries of the bones as between mortification and ulceration of the soft parts. That the general reader may understand this, we shall endeavour so to state the difference between these two states of bone as will guide the non-professional surgical assistant in his practice for the removal of the one and the restoration of the other to a healthy state. In caries the vitality of the diseased bone is impaired, but not entirely destroyed; and its state is analogous to that of ulceration of the soft parts. On the other hand, in necrosis the part is entirely dead, its vital functions have completely ceased, and there is no longer any circulation through it. The mischief of necrosis may extend not to a small portion of bone, but sometimes to the whole shaft of one of the long cylindrical bones. The head of the bone, however, generally escapes the articular parts, or those forming the joint, are usually spared, and when nature forms a new shaft, the original portions left, commonly the ends of the bone, become grafted, as it were, on the new osseous or bony case, and so effectually is this process completed, that the limb very frequently retains its usual length, and what is more extraordinary, its former strength. These facts teach a practical lesson, which is, that after a portion of a bone has perished or fallen into the condition of necrosis, its detachment and removal become as necessary for the process of reparation, and the cure of the patient, as the taking away of any other extraneous substance lodged in any part of the human frame, and keeping up irritation, suppuration, and other effects. Indeed, the dead bone is to be now regarded as an extraneous substance, and its removal from the part either by the ac-

tion of the absorbents, or by surgical proceeding, is absolutely necessary. It matters not, as far as the nature of the disease is concerned, whether merely one layer of the bone is affected with necrosis, or the whole substance of it. The disease is still essentially of the same kind, and the various circumstances of depth and extent to which the disease may have proceeded, relate only to its severity and certainty, and are of great importance as far as regards the prognosis, the prospect of cure, and the length of time which will necessarily elapse before this desirable event can be accomplished; but the disease is necrosis, whether a small portion of bone perishes, or the whole or greater part of a bone. While caries mostly affects the spongy parts of bones, and those bones which are of a light texture, necrosis is found to attack principally the harder parts of bones, and those bones which naturally contain the greatest quantity of phosphate of lime, and are of a firm compact texture; and this is so much the case, that those circumstances which would produce necrosis in the harder parts of bones, seem mostly to cause caries when they exert their operation on the softer parts of the skeleton. Among the bones most frequently attacked by necrosis, we may mention the tibia or large bone of the leg, then the femur or thigh bone, the lower jaw, the clavicle or collar bone, and the radius and the ulna, or bones of the fore-arm. The bones of the cranium are likewise frequently the seat of necrosis, but of all the bones, the tibia or large bone of the leg suffers most from this disease.

Both sexes are liable to necrosis or death of bone, and at all periods of life; yet the disease is more common in very young persons, and especially those who have scrofulous constitutions. This observation must, however, receive one qualification, viz., that all persons who are exposed to dangerous and laborious employments, whose pursuits render them liable to suffer from accidental external violence, are frequently the subjects of necrosis, whatever may be their age or constitution. Although the most extensive forms or degrees of necrosis are seen in the long cylindrical bones, they are sometimes met with in the flat ones, and even the thick short bones are occasionally quite destroyed. We have already stated that the bones of the cranium are not unfrequently the seat of the disease, and that the lower jaw is very often affected, and there are many instances in which the scapula or collar bone is attacked; and this bone is very liable to injuries in falls from horseback or any height. The most wonderful circumstance, however, connected with this disease, is that which we have already alluded to, viz., that when the shaft or middle portion of a bone has perished, or fallen into the state of necrosis or death, its heads or extremities, or in other words, its more important articular portions, almost always continue to live, and a process is established by nature, by which they are united to the new osseous or bony formation, occupying, covering, or standing alongside the dead shaft, if it has not been removed, and the examples to the contrary, though possible, are very rare. Cases do sometimes happen, but as we have just observed, they are very uncommon, in which the extremities or articular parts of bones are destroyed or involved in the mischief of necrosis, and then, as the shaft is more or less destroyed at the same time, the prognosis is very unfavourable, and amputation of the limb, or other means of a painful nature, can scarcely be dispensed with.

With respect to the causes of necrosis, every thing affecting the periostium or membrane which invests the external part of bone, the bone itself, or the medulla or marrow, or medullary substance, in such a way as to interrupt the nutrition of the bone, may conduce to produce necrosis. The causes, therefore, may be considered as external and internal; the external are principally severe contusions, bad compound fractures, pressure, and irritation of foreign bodies in the substance of the bone itself, or in its cancellated structure. (See *Bone*.) The lodgment of a ball, for example, or the long continued exposure of a bone, deprived of its periostium, to the air, will lead to necrosis or death of the portion so exposed, and irritating the surface of a bone with acid or caustic applications will produce a similar effect. Thus sometimes the free use of strong concentrated acids in the treatment of sloughing ulcers on the skin, will, if care be not taken, produce necrosis of the tibia or larger bone of the leg, a situation where these ulcers most frequently occur; and there have been instances even of necrosis being produced in bones by severe burns, and that too in the bones of the cranium. Not many years have elapsed since our most skilful surgeons imagined, that a portion of bone deprived of its periostium, and exposed to the atmosphere, could not be cured without exfoliation of the part of the bone thus uncovered. They fancied that it would of necessity become attacked with necrosis, and thrown off from the living part of the bone before a cure could be accomplished; experience, however, has shown that it does not hence follow, that a bone must die and exfoliate under such circumstances. It is true, however, that if the bone has suffered much contusion, if the patient is old, feeble, and unhealthy, and especially if exposure has been long continued, necrosis will most probably take place, but not otherwise.

The internal causes of necrosis, we mean those causes which affect the bone through the medium of the constitution, are various, and more or less obscure. Experience proves, however, that necrosis may follow that deranged

and debilitated state of the constitution which is left after various kinds of febrile disturbance. The origin of some of the worst cases may be attributed to the debilitating effects of typhus fever, small pox, or even measles. Lues venerea, scrofula, scurvy, and the prejudicial influence of a badly conducted course of mercury, have all been known, under particular circumstances, to excite necrosis. When mercury gives rise to this affection, it is generally when that medicine is administered for the cure of syphilis, and the patient does not, during such mercurial course, take proper care of himself, being exposed to the vicissitudes of the weather, or incautious in his diet. In many instances, mischief is brought on by the mercury being given in excess, or by small quantities acting with unusual violence. The bones which most frequently suffer under these circumstances are the lower jaw, and part of the veolar processes of the upper jaw, more frequently the latter.

The doctrine that pus had a corrosive quality, and that when it was left in contact with bone, would destroy a portion of it, is now exploded. For the better understanding the plan of treatment, as well as being able to describe appearances, it should be borne in mind that the technical term applied to dead bone surrounded by new osseous or bony matter, is the *sequestrum*, and the apertures or openings through which the matter formed in the interior is discharged, receive the name of *cloacæ*.

The symptoms of necrosis vary in different cases, according to the extent of the disease, and the nature of its cause. When the necrosis is of limited extent, that is, when the affection is merely superficial, not extending deeply into the bone, and arising in consequence of external violence, the symptoms will not be very different from those of a common bealing or phlegmenous abscess. Suppuration or bealing occurs in the soft parts, and as soon as the matter is discharged, if a probe is introduced the bare bone will be felt. In such cases, unless there be an extensive and violent inflammation of the soft parts, there may be little or no constitutional disturbance; but when the necrosis is more considerable, and the soft parts are more extensively implicated, either primarily or secondarily, in the disorder; then there will be a greater and sometimes a violent derangement of the system. But there is a form of the disease, or rather a form of caries, generally ending in necrosis, in which the patient is generally young, and of a scrofulous habit, and in which the bones of the carpus or wrist of the tarsus or foot, or the phalanges of the fingers suffer; and this is a very common form of disease among the lower classes in great towns, and even in the country. In such cases in general an indolent swelling first forms, unattended with much pain or disturbance of the system; at length a fluid collects in the part which bursts and pours out an ichorous matter. In this stage of the disease, the rough bare bone may be felt by introducing a probe; in fact, the bone, or part of it, is already in the state of necrosis or death. It is often lamentable to see children with one or more toes, fingers, the wrist or instep of the feet or toes, under the dominion of this disease. It is indeed chiefly in individuals thus predisposed to the disease, that those formidable examples of necrosis is met with, in which the whole shaft of a long cylindrical bone perishes. On the application of some exciting cause in scrofulous or syphilitic persons, the death of the shaft of a long bone, or a considerable portion of some other bone, occurs. In individuals whose state of constitution promotes the origin and wide spread of disease in the bony system, necrosis generally begins with a deep seated and excruciating pain in the limb, followed by a general swelling, involving the whole of that part of the member, and mostly including also the two nearest joints. It is, however, much greater about the centre of the limb than elsewhere; and one of its characters is, that it seems to have no definite boundary, presenting every where a remarkably firm unyielding feel. The patient experiences no alleviation of his sufferings till matter forms, and the abscess bursts, and then there is generally some diminution of the pain; but it is found that on the escape of the matter, the tumour does not subside in the degree usually remarked in a common abscess, under similar circumstances; there still remains an immense swelling, which is very firm and unyielding, depending upon the great quantity of coagulable lymph diffused around the dead bone, and the thickened and edematous state of the cellular membrane. These circumstances explain why there is so very little subsidence or abatement of the swelling immediately after the matter has been let out, or made an outlet for itself. Here, as in the other cases, the introduction of a probe after the opening or bursting of the abscess, it will be found that it passes onwards till it is stopped by the bone, a portion of which may be often felt bare and rough. And by the bye, before we come to consider particularly the treatment, we may here observe, that the sooner, in such cases, the matter is let out, the sooner will the patient experience a diminution of the agony attending the confinement of deep seated matter. After the matter has made its way out, or been discharged by puncture, the opening or openings will not heal up very speedily, for they are mostly converted into fistulous sores, and losing all disposition to cicatrize or unite, they emit fungous granulations, (Scotch proud flesh), around their orifices. The indisposition of these openings to heal, is doubtless kept up by the presence of the sequestrum, or dead bone keeping up irritation and suppura-

tion, and this is even a wise provision of nature, in order that whatever pus is formed may flow out, and sometimes, as experience proves, for the passage of the dead bone itself. In consequence, however, of the continued presence of the sequestrum or dead bone, and the protracted suppuration thereby produced, the sympathetic inflammatory fever which attends the first stages of an extensive necrosis is soon converted into a febrile disturbance of the hectic type; indeed, the disease generally goes on so long, and the discharge sometimes continues for such an indefinite length of time, that the constitution may be reduced to the lowest state of weakness; and in addition to the hectic, there are occasional attacks of irritative fever, and from this the only chance of deliverance is either by an operation for the extraction of the diseased bone, or amputation of the member. It should be recollected, that the colour of the sequestrum or dead bone is not always the same, being sometimes black, and at others white, and it is always a sure sign of a necrosed bone, when it is whiter than natural. The situation of the bone generally determines the colour, as that which is more superficial and exposed to the air, is darker ; and the deeper situated is of a whiter colour, except it has lain long at the bottom of an open ulcer, when it is generally dark.

Exfoliation is that process by which the dead portion of the bone is separated from the living portion, and it has a strong resemblance to the process by which sloughs of the soft parts are thrown off, making due allowance for the greater slowness with which all changes in the bones are carried on. Another topic, and one which has been already alluded to, viz., the reproduction of bone, is a subject rather beyond the province of a work of this description. On this very curious and interesting subject of inquiry, pathologists are by no means agreed, although considerable light has been lately shed on the subject; and those who feel inclined will find a succinct view of the various opinions, facts, &c. in Mr Stanley's Lectures on the Bones, delivered before the Royal College of Surgeons, London, in 1837. We may here, however, observe, that the questions are, whether nature accomplishes her purposes by means of the vessels of the periostium, or outer membranous envelope of the bones, or by means of those of the medullary membrane, or in any other manner in which it is supposed that when the whole shaft of a bone has been re-produced, the inner portion of the bone alone has perished, and that the outer one has been saved, and transferred into the new shaft? This last opinion is maintained by some men of considerable eminence both in France and Scotland. They assert that in necrosis the whole of the bone does not really perish, that the outer portion is preserved, and that when the whole shaft seems to have been reproduced, it is in consequence of the external lamina separating from the inner ones, which alone are truly destroyed. That the latter representation is not applicable to a great number of instances, we agree with that judicious and intelligent surgeon, Professor S. Cooper, in thinking to be perfectly certain, and resting on the most incontestable proofs; but whether it is ever really the case, is another question. Although necrosis, if of any considerable extent, is not a disease to be entrusted to a domestic or non-professional attendant, we have not considered it useless to inform such individuals as to its nature, treatment, and consequences, as we are persuaded, and as we have elsewhere observed in the course of this work, that those who are best informed on the nature of a disease, under which either themselves or their connections labour, most readily submit to the advice of a sensible and well-informed practitioner, or exert their influence with their friends to do so, when any disease of doubtful issue makes its appearance.

We therefore address ourselves to the treatment of necrosis; and as we have already been under considerable obligations to Mr Cooper for hints on this and other surgical diseases, we shall follow the arrangement he has adopted in treating of this disease. Necrosis presents itself in three different stages, the first of which is attended with inflammation, and is that in which the disease is forming. In this stage of necrosis, recourse must be had to what is called the antiphlogistic treatment, especially the application of leeches, and afterwards cupping glasses over the leech holes. When leeches cannot be procured, cupping may be employed, and this operation may be performed with a common lancet where a scarificator cannot be procured. A very stout small tumbler is first to be exhausted of air by means of a little lighted paper, and applied to the part. It will of course draw up the integuments, and produce a determination of blood. The glass is to be then removed, and from twelve to twenty incisions made with the shoulder of a sharp lancet about the size of the wound made in bleeding at the arm. The glass or tumbler is then to be re-applied, and blood will flow in some instances equally well as if the incisions were made by a scarificator. When the glasses are half filled, they may be removed, and the wounds washed with a soft sponge out of warm water, and the glasses re-applied. When neither leeches nor local bleeding can be employed, cooling lotions may be applied, such as crumb of bread invested with a solution of sugar of lead, and in some cases warm fomentations, with poppy heads or other soothing herbs. It is evident from the very nature of the disease, namely, from the circumstance of its unavoidable and speedy complication with a portion of bone en-

tirely deprived of all vital action in it, which dead piece of bone must then be regarded as an extraneous substance, that the utmost we can do in this stage is to lessen the inflammation, and appease the patient's sufferings, the sequestrum or death of the bone will inevitably be produced, and must be got rid of before a cure can be accomplished. In addition, therefore, to the local bleeding, the bowels must be kept open by the solution of the Epsom salts in infusion of roses three times a day, and an enema at bed-time of twenty drops of each of the tinctures of henbane and hemlock, ten drops of tincture of digitalis and thirty drops of laudanum in an ounce of linseed tea or water; and this, if retained, will afford ease. Opiates should, however, never be given but at bed-time, and if possible always in the form of enema. In the early or first stage of the disease, one principal indication is to let out matter directly—it is formed. And it should never be forgotten, that as the matter is often much confined and deep seated, that a free and deep incision is necessary for its evacuation, bearing in mind that an early and efficient discharge of deep-seated abscesses is one of the most useful measures which can be pursued in the treatment of the first stage of necrosis or death of bone. The second stage is that in which the sequestrum or dead bone is completely formed, yet firmly attached to the living part of the bone. In this case it is necessary to wait until nature has more or less detached it, before any useful steps can be taken for its removal. There is no medicine known to have the effect of promoting or quickening the process of exfoliation, although many complicated formulæ were formerly employed with that view; and even when the whole shaft of a bone is in the state of necrosis, it is by the process of exfoliation that its separation from the living extremities is to be effected. The dead bone, however, could not be extracted in such a case without a great deal of difficulty, unless exfoliation were somewhat advanced. In this second stage, too, advantage can always be taken of the fistula or openings to use the probe, and feel some part or parts of the sequestrum. That process by which the dead bone is loosened and separated from the rest, or in other words, exfoliation, is often a particularly slow one, sometimes requiring months and even years for its completion. Though the process, as we previously observed in another section of this article, is analogous to that by which sloughs are detached, it differs from it in requiring a much greater time, and unfortunately we have few means by which we can influence it in this respect. Some have tried counter-irritation, by applying blisters, for the purpose of expediting the process of exfoliation, and the practice was at one time in our remembrance adopted pretty generally in the London hospitals and dispensaries, and we have no doubt that blisters or issues tend in some degree to quicken the process of exfoliation, and at all events is often beneficial in lessening the disposition to repeated attacks of inflammation in the deeper parts of the limb, the recurrence of painful and large abscesses, and all the severe constitutional disturbance which is so liable to arise from these states of the disease. At the same time, however, blisters in such cases, especially when applied to the lower extremities of males, if not regulated with due caution, and removed in five or six hours at farthest after their application, are very apt to produce very troublesome stranguary. (See *Blistering.*) In necrosis the health suffers not merely from the discharge which is so copious, and long kept up, but from the repeated recurrence of fresh inflammation, and renewed formation of matter, after other abscesses have been nearly or quite cured. The strength should, therefore, be supported by nourishing diet, for when the patient is languid and reduced by hectic complaints, the process of exfoliation will not go on so well as it would do if the actions and functions of the system at large were carried on with more vigour and less disturbance. It is a well known fact to those who have had experience in the treatment of necrosis, that exfoliation proceeds more quickly in young persons than old ones, which is fortunate, seeing the very worst cases of the disease occur in youth. It must not, however, be concealed, that notwithstanding all that can be done by means of tonics, diet, and other appropriate hygienic means, that a complete cure of necrosis in its second stage by natural processes, that is, by the complete absorption or annihilation of the sequestrum, and the subsequent healings up of the fistulous openings, is but too seldom accomplished, and indeed is a termination never to be expected. But in the generality of instances, very active and sometimes remarkably bold measures become necessary, but these can seldom be adopted with any success during the second stage, unless the surgeon were absolutely compelled to amputate the limb; for if the general health should be so dangerously reduced and deranged by the pain and irritation and profuse discharge, that a further perseverance in the attempts to save the limb would be more likely to lead to the patient's death than the cure of the necrosis, the surgeon would then be justified, after a consultation, in operating. We would, however, most seriously recommend to patients and their friends to submit to the proposal of amputation when all other means have been tried in vain, and when the life is in danger.

The third stage is that in which the sequestrum is loose, and the dead bone can only be regarded as an extraneous body, keeping up

more or less irritation and suppuration. Its removal, therefore, either by natural processes or by interference, is now necessary for the cure. Sometimes one end of the dead bone will protrude through the skin, and if the opening is large enough, may be seized hold of either by a pair of forceps or pincers, or between the finger and thumb, and brought away; or if the opening is not large enough, it may be extended in a longitudinal direction towards the other end of the bone, and cautiously laid hold of and brought away. When it is the bone of the leg or arm, the dead bone is seen through several openings in the integuments; these may be cut through, and the bone extracted; but sometimes it is necessary to detach one end of the bone from the new bony matter which surrounds it. It is first necessary to ascertain whether there is really a sequestrum or dead bone present, and whether it is loose, which can be easily ascertained by the probe or probe-pointed forceps. A careful judgment should be formed on these topics. It is even possible, too, that the bone may be absolved, or, in the language of some rustics, dissolved. For these reasons, and others we could adduce, we agree with Professor Cooper in thinking, that when the health is pretty good, the discharge lessening, and the fistulous openings inclined to heal, it is the best practice to leave the case to take its own course. At all events there is no urgency for any operation, and therefore nature should have time. But when the health is suffering dangerously, and the sequestrum is known to be loose, that is, can be felt to be so, it becomes an object to remove the dead bone from the osseous canal in which it is confined, and which is frequently so hard as to require the saw or trephine, and a skilful operator to use them.

We have already observed that in unfavourable and extensive cases of necrosis, amputation becomes indispensable, because the patient's constitution cannot bear the repetition of the operative proceedings, or the frequent use of the trephine or saw necessary to get away every part of the dead bone; for it frequently happens that all the sequestrum cannot be removed at once, and then several operations become necessary. In the course of the treatment, tonic medicines will be needed, and sometimes also on account of the frequent attacks of inflammation, these may be combined with antiphlogistic means. There may indeed be, and often is, in the course of a year, from eight to double that number of attacks of inflammation of the soft parts, followed by new abscesses on each occasion; and under these circumstances, reluctant as a feeling and honest surgical attendant may be to do any thing to weaken the patient farther, he is compelled to use local bleeding, and other antiphlogistic means in moderation. If the unavoidable irritation and drain upon the system produced by the long continuance of the disease, is taken into consideration, it need occasion no surprise if in many instances the patient should be reduced so low by hectic fever, that amputation is the only chance of preservation. The limb should never, however, be taken off unnecessarily, and an honest and judicious surgeon will always bear in mind that nature can do a great deal for the patient in this disease; and strange as it may seem to those unacquainted with the structure and economy of the human body, there is no texture or tissue which nature possesses a stronger power, we had almost written, inclination, to reproduce and restore, after it has been destroyed or injured by accident or disease, than of the osseous or bony system.

As little or nothing has been stated respecting external applications to the sores occasioned by this disease in the second and third stages, we may observe, that these must vary according to circumstances; rags thinly covered with fresh lard or elder flour ointment, or even rags wetted with cold water or lime water; and cases where the granulations are too profuse, sprinkling them with red precipitate, and dressing them with the ointment of the same. Poultices of boiled carrots or turnips occasionally, especially in warm weather, and washing the sores, and even injecting turpentine of myrrh into the cavities, will correct the fœtor of the discharge. Cleanliness is a paramount object, and this should studiously be attended to. The dressings employed in caries and ulcers, to both of which articles we refer, may be used under similar circumstances. See *Bones* and *Caries*.

NERVES, or NERVOUS SYSTEM. 'The nervous system may with great propriety be said to preside over all the functions of the animal economy, for it would be restricting its influence to a very narrow limit, were we to say that it merely receives impressions from without, and transmits volition from within. When we see a limb deprived of sensation and motion by an apoplectic seizure, we at once admit that these powers are dependent on nervous action; and we cannot but infer that nutrition and animal heat are equally so, when we subsequently find the limb wasted, and its temperature diminished. In like manner, we find the secretion of urine diminished and altered in consequence of injury to the spinal marrow, and we frequently find respiration rendered imperfect, or instant death ensue from its suspension, caused by injuries of the spinal marrow above the origin of certain nerves connected with that important function; and finally, we find intellect and reason extinguished by a portion of bone being depressed upon the surface of the brain.'

A general idea of the nervous system has been given by likening it to a tree, the brain being considered as the root, the spinal marrow

as the trunk, and the nerves as the branches arising from these parts. Again, it has been compared to a vast net-work of nerves interlacing at their peripheral terminations, throughout the system, and also becoming united by decupation in the central masses. However vague and in some respects questionable such loose generalities may be, they serve the purpose of conveying to the mind the idea that the nervous system, though complex and subdivided, forms one whole, all its parts being intimately connected and associated, at the same time that some are placed in subordination to others.' *Quain.* See article *Brain.*

Nerves are the white firm cords which issue from, or communicate with, the central masses. Each nervous filament is found, on examination, to consist of a white substance termed neurine, enclosed in a firm sheath named the neurilema, the larger nerves being composed of an aggregation of such filaments arranged in parallel lines, and with occasional short communicating filaments enclosed in a common sheath. On the course of some nerves we find small reddish gray swellings termed ganglia, the functions of which are not fully determined. Plexus is the term used to denote the communications of two or more nerves with each other, thus forming a kind of net-work; and this arrangement seems to be in some degree analogous to the anastomosis of the blood-vessels.

The nerves are classified according as they arise from the brain or spinal marrow, into cerebral or spinal nerves; and besides this cerebro-spinal system, there is another termed the ganglionic system, or great sympathetics, which consists in a chain of ganglia, which, commencing at the upper and forepart of the neck, and passing down on each side of the spinal column, termiantes at the lower part of the sacrum. This system communicates freely by means of filaments with both the cerebral and spinal nerves, and from it are derived the principal branches which supply the viscera. Nerves are also divided, according to their functions, into nerves of sensation, nerves of motion, and nerves of peculiar sensations, or what we term the senses; and Sir Charles Bell has shown that all the nerves concerned in respiration, whether motion or sensation, arise from a separate tract of the spinal marrow, and hence he has distinguished them as a separate class, under the title of respiratory nerves. The nerves of the senses are the first, second, a branch of the fifth, the seventh cerebral nerves; the first being the olfactory or nerves of smell; the second the optic or nerves of sight. The gustatory branch of the fifth is the nerve which seems principally concerned in tasting; the seventh is the nerve of hearing. With regard to the sense of touch, although that sense be in some measure diffused over the whole external surface of the body, still it is principally developed in the points of the fingers, and there it seems to depend on the arrangement of the extremities of the digital nerves in the pulps at the ends of the fingers. The term excito-motory nerve, signifies that such nerve, or filament of a nerve, causes motion indirectly by a reflex action; in other words, that such nerve being acted on, the sensation is communicated by it through the central nervous mass to the motor nerve, which then throws the muscles of the part into action, motion being thus indirectly excited by means of the stimulus applied to the sensitive nerve.

From the close connection of the different parts of the nervous system with each other by means of the free communication of nervous filaments, the reader will now be better able to understand how parts of the animal economy, at first sight apparently remote, and quite dissimilar in their functions, sympathize with each other in disease. Thus, in a common case of disordered stomach, or a bilious attack, we have frequently violent headache, resulting from the nervous communications between those two remote parts. See *Brain*, &c.

NERVOUS DISEASES. Although the researches of our distinguished countrymen, Sir Charles Bell and Shaw, Swan, Mayo, and Graves, and Magendie and others in France, and other parts of the continent, have shed more light on the physiology of the nervous system, the diseases of that system are little better understood than they were a century ago. They have, however, increased, and in our opinion are still on the increase; for we cannot enter into any society without meeting with some individual who complains of being more or less nervous, while we seldom meet with two in which the disease is alike in its symptoms and effects. The day has indeed gone by when nervous affections were treated with what were called nervine medicines, and when antispasmodics, tonics, and cordials were the only resource of the physician; but although the mode of treatment now adopted is more rational, and if attended to and followed up by the patient, would doubtless effect more good than the preceding practice, still the number of cures are 'like angel visits, few and far between.' It is not our intention to enter into a consideration of the various and often indescribable affections usually denominated nervous, as those nervous diseases, such as hysteria, epilepsy, and mental alienation or insanity, &c., are considered under their respective designations; but to offer such general remarks on nervous affections as may tend to guard persons most subject to these diseases, especially youth, against those systems of action and general conduct which are their principal source.

On entering on this difficult task, we may

observe, that of all the disorders which affect the human frame, there are perhaps none which exert so extensive an influence, and at the same time are so little understood, as the whole class of nervous diseases. This ought to be less matter of surprise, when it is considered that they are not confined to the body, but invade the province of the mind itself; and while they constitute often distinct disorders, known by a train of symptoms peculiar to themselves, they likewise form a considerable part of many other disorders, and sympathize with all the changes to which the body is liable from age, from climate, from indulgence, from exhaustion, from joy, or from distress. Their effects, as might be supposed, are hardly less various than their causes. It is difficult to define or secure such a Proteus. In fact, what we consider as morbid sensibility, is but an excessive or irregular action of one of the most engaging constituents of human nature. 'What,' as Dr Haberden beautifully remarks, 'what would be the condition of mankind without hope, without fear, without interest in prospect or in possession? Life itself would be a burden, deprived of this source of animation. But delightful as this faculty is, it requires, like all our energies, to be restrained within certain bounds, and regulated by proper adjustment, that all parts of the frame may act in harmony, and each conspire to the well being of the whole.' We shall therefore proceed to point out some of the causes, and some of the effects, of such a degree of nervous sensibility as constitutes a state of disease, and suggest the use of such medicinal and moral means as may best prevent or relieve those truly harrassed, although seldom pitied individuals, who suffer from an overstrained nervous sensibility. Lying, as it were, on the confines of the mental and bodily provinces, it is right to ascertain, in each instance, first, to which of these diseases itself justly belongs, that the cure may be directed to the actual cause, rather than to the apparent effects of the malady. Those more conversant with anatomy than nature, will be apt to ascribe more weight than is due to the course and efficiency of the nerves, properly so called, and to extend their influence beyond their legitimate operation. Very striking effects, it is true, are often discernable from pressure or injury inflicted either upon the nerves of particular parts, or upon the brain or spinal marrow, those great centres from which all the nerves appear to derive their energy. Part of their action is employed in conveying animation and vitality to all the members of the body, that these may be able healthfully to execute their general functions, and in part afford sensations, useful, pleasurable, or painful, by which, as by a sort of natural instinct, we are taught what to choose and what to avoid. But important as these operations are, they constitute but a small portion of that train of feeling which is commonly known by the name of nervous.

The simplest method perhaps of contemplating the subject, is to consider the body as made up of two distinct principles of muscular power, and of nervous sensibility, its healthy state depending upon their due adjustment, while excess on one side tends to brute violence, on the other, to timid counsels, painful irritability, causeless apprehensions, and fretful uneasiness. The irrational part of the creation are not wholly exempt from these effects, which in those animals with which we are most conversant, show themselves in dullness and stupidity, or in starting and shyness, or snappishness, all equally removed from the steady courage which is the perfection of their nature, and which we must look for in that (μεσης) middle point of Aristotle which constitutes the essence of every beauty, and every virtue, and round which all are balanced in just proportion.

The proudest view we can take of man is to see him like some fair vessel proceeding steadily through the ocean of time, his sails impelled by the feelings and passions of a well ordered mind, his irregular motions controlled by the ballast of a sound understanding, while judgment sits at the helm, with eyes fixed on the compass of reason and religion. But, alas! it is but an ideal picture; the very opposite is too often presented to our view, and especially to the view of physicians, who are more especially called upon to observe human nature in its extravagances and deformities; but the picture is so glaring, that it can scarcely escape the notice of the most careless and unobserving. When the mask of civility is thrown aside, the body exposed enfeebled by disease, the mind irritated by vexation, sunk in despondence, or it may be, hurried into madness, jealous, wakeful, restless, changed in temper, in character, and manner, how humiliating is the scene! Painful to the beholder, and more painful to the sufferer, and almost justifying the expression of the amiable Addison, that Babylon in ruins is not so sad a spectacle. Many, nay most of those affections, even when they are purely nervous or mental, do nevertheless draw the body into some participation of their disorder, so that the sleep, the appetite, the digestion, are usually more or less thrown out of their healthy condition. And this is not to be wondered at, when we reflect that it is through the operation of the nerves that these parts are excited to the proper discharge of their several offices. Are not the very features distorted by fear, by passion, by despondency? Were men indeed convinced that their health and comfort were so materially dependent upon the regulation of their own minds, they would be more careful to strengthen them by study, and moderate them by reason,

and confirm them by religion, and reduce them to an equanimity not easily disturbed by the crosses and accidents of life. It is to the want of this right judgment of things, that we see people work themselves up to a state of great misery from the merest trifles. Half the evils of life are inflicted by ourselves. In a commercial country, men are often at the mercy of the winds and waves, and the failing of some speculation, or disappointment of a cherished hope, has brought some to distraction and death. This is the effect of not seeing things in their true light, of setting a greater value upon riches, honours, or power, than they deserve. For these things, when they have been made undue objects of desire, absorb, as it were, all other considerations, and fill the mind with false hopes and fears, the very fuel of insanity. And it is no wonder that the failure of an object that engrosses all a man's thoughts, should upset a mind unguarded by the security of right reason, undisciplined in moral virtue, and unsupported by religious faith. But it is not to this melancholy view that we wish particularly to draw the attention, for religion, virtue, and good disposition, and good sense, will not secure a person from the invasion of nervous ills. Qualms, and misgivings, and causeless apprehensions, and despondency, will sometimes take possession of the mind in spite of our better reason, and throw a cloud over our fairest prospects. Tears will flow, and laughter will break out, unprovoked by sorrow or joy, and apparently arising from that fluttering state of animal spirits which is known by the name of nervous. If these effects be more common in females than in men, we see a deeper dejection in the latter, filling them with unfounded alarms, either disqualifying them altogether for business, or obliging them to pursue it in heaviness or heartlessness.

We have dwelt longer on this subject, because it forms a very large proportion of those affections, for the cure and relief of which the middling and higher classes of society require the aid of a professional attendant. Nervous irritability, irregular sensations, uncontrolled impressions, unfounded uneasiness and restlessness, are often accessary to bodily infirmities, often wholly independent of them, and sometimes mimicking real diseases, are things of daily occurrence, and demand a diligent attention to investigate their true source, to sift reality from appearances, and to administer their proper remedies, remedies not confined to drugs and potions, but calculated to afford consolation and refreshment, by giving a new direction to the mind, by help and encouragement, raising the languid spirits, and calming those which are troubled. The good sense and prudence of the physician or friend is much seen in these matters. Where roughness might disgust, and flattery perpetuate disease, firmness, combined with mildness, and aided by a judicious application of medicines, and a moderate interchange of exercise and rest, of occupation and amusement, of company and retirement, will often restore to its healthy condition a mind tormented with vapours, or afflicted with a mixture of real and imaginary disease.

Disease itself will sometimes prove a cure to the apprehension of it, and of this we have seen many examples. Dr Heberden has recorded a strong instance of this having occurred in the case of an elderly gentleman of good acquirements, who was seldom many days together without sending to the Doctor, under the impression of some great malady either actually begun, or imminently threatened. He would hold up his hands in amazement, and express no small surprise if Dr H. assured him his pulse was good, or other things in a natural state. At length, after a longer interval than usual, his nephew called on Dr H. requiring his attendance on his uncle. 'Then,' says the Doctor, 'for the first time I found him seriously ill, and for the first time heard him say that he had not thought it necessary to trouble me, as he considered it a thing of no consequence; but it was indeed the extinction of life itself. He continued cheerful for the few days that he survived, and then sunk quietly into the sleep of death.'

The practice of almost every physician furnishes many curious instances of the effects of the mimicry of disease, and this sometimes even extends to the imitation of personal defects. Nervous affections, however, are likewise frequently entailed by mimicry or imitation, and of this Dr Heberden, from whom we have already quoted so freely, records some very instructive instances. 'While,' says Dr Heberden, 'I was physician to St George's hospital, a woman was brought in with a peculiar affection of the throat, which occasioned a sound unlike any thing I had ever heard, or could have attempted to imitate. It so happened that she was placed in a bed near to a young person, a patient of mine, who in a few days began to make a noise just like that of the new comer. Upon removing one of them into a different ward, this presently ceased. On another occasion I was consulted by a lady who kept a boarding-house for a dozen of girls. One of them, of an hysterical constitution, had conceived I know not what alarms from the idea of a gentleman of unsound mind being confined in the adjoining house. One day, upon hearing or thinking that she heard some noise, she fell into a hysteric fit, which was afterwards several times repeated upon very slight occasions, and not only so, but others of the girls now also took on the same affection, till at length any noise, however trifling, as the opening of a sash, or moving a chair overhead, threw

half the school into convulsions. The remedy was obvious, and was soon effected. I got the gentleman removed to another house, and the school presently recovered its accustomed order.'

Instances of this description might be multiplied to almost any extent, (see the article on *Hysteria*, &c.) and they prove how easily nervous affections may be excited in a delicate frame, where we cannot suspect any bodily disease to give rise to them. They are most common in females, particularly in those who labour under irregularities of any kind connected with their sex, and this suggests an important consideration, that if a delicate habit, and an irregular action of the female body, be among the chief causes of these affections, whatever strengthens the habit generally, or restores the healthy disposition of the disordered functions, may be expected to furnish the most appropriate remedies. The mind, as we have seen, is by no means unconcerned in these trains of symptoms; to the mind, therefore, must be applied such attention as may be most likely to call it off from its morbid feelings. When these are excessive, they may usefully be soothed by opiates, especially in conjunction with ammonia, or some of the fœtid gums. The ammoniated tincture of opium in the dose of half a dram to a dram, with two drams of the tincture of hops in a wineglass or gill of peppermint water, will form as soothing an anodyne draught as can be used in a delicate nervous patient. It will require of course to be sweetened by the addition of sugar or syrup, and when the stomach is irritable, the enema of forty drops of laudanum, and one dram of tincture of asafœtida, in a gill of linseed tea or barley water, may be substituted. We do not, however, recommend the indulgence of any such practice, and it is only their occasional use we advise, as in this way they break in upon the restless nights and confused dreams of the patient, and in this way derange diseased habit, by soothing the nervous irritability. The more desirable practice, when it can be adopted, is by giving a new turn to the animal spirits powerful enough to overcome their habitual fluttering and fretfulness. 'I can bear some testimony,' says the late amiable Bishop Jebb, 'and hope to bear more, that resistance and activity, next to the knowledge and feeling of true religion, are the best means of overcoming low spirits.' To these sentiments every genuine unsophisticated Christian will readily subscribe, and a greater authority than this amiable and learned prelate has said, 'That a merry heart doth good like medicine, but a broken spirit drieth the bones.'

Indolence at once feeds and is fed by this complaint, for how often do we find those who, after having acquired a competency, retire to enjoy in peaceful retirement and ease the fruits of their industry or fortune, fall a prey to nervous and hypochondriac affections, which are only removed by a return to their former active habits; and the records of medicine furnish numerous examples. Thus we see that the string may be too loosely or too tightly stretched to produce its proper tone, and give its effect to the general harmony of the body. The usual attendants upon this state of things as regards the body, are indigestion, uneasiness, and pain in the stomach, an increased secretion of urine, diarrhæa, or sometimes costiveness, nausea, giddiness, inflatation of the bowels, loss of appetite, cramps, palpitation, sighs and tears, debility and wakefulness, and all this with a pulse little altered from its natural rate. The mind at the same time is apt to be unsettled, querulous, and afraid, where no fear is. This disorder is not unfrequently aggravated by an injudicious use of wine and spirituous liquors, which, if they appear to lull the senses for a little space, and to afford a temporary elevation of spirits, presently reduce the patient to a worse condition than he was in before; his uneasiness being increased, his power of resisting it is diminished. If, however, wine and ardent spirits are injurious to men, in how much greater degree are they to the female sex, many of whom are reduced to the lowest grade of physical, moral, and intellectual degradation, by having acquired a taste for ardent spirits in the form of foreign liqueurs, cordials, tinctures, and medicated drams. Where, indeed, immediate relief of intolerable distress is required, opium or the preparations of morphine affords a better and a safer remedy than either vinous or alcoholic liquors; but even these, as we have already observed, require to be employed with caution, and most frequently in the form of enema, as the combination of the tinctures of opium and asafœtida. Generally, however, a diet that animates and stimulates the frame is rather to be recommended than poor or deficient nourishment, and what is true of food, is also true in regard to physic, for nervous patients bear bleeding and lowering medicines ill, and with Dr Heberden we wish that we could persuade many members of the faculty that such patients bear calomel ill, also the disgrace of modern medicine. Instead of thus blindly giving calomel for this disorder, or rather for every form of nervous disorder, as many of them do, they would do well to consider that here, as in most illness, it is the business of the physician to bring all parts of the frame as nearly as possible to a healthy state, and when the natural energies of the body are restored, to let nature complete the cure undisturbed by eternal calomel. There is a class of spinster females, a considerable number of which are to be met with in all cities and great towns, who depend on very limited incomes, but who to their credit keep up a tolerable respectable ap-

pearance, and who are the victims of strong tea and a too scanty supply of more substantial fare; and such individuals, we are sorry to state, could not be placed in a more fruitful nursery of nervous and hypochondriac affections. To these we say, take more frequent exercise out of doors, less strong tea, and a greater proportion of animal food, and such recreations as impart animation and vigour to the system. Indeed those who have not studied the subject, can scarcely be led to believe how very trifling a circumstance will affect a nervous invalid. Something of the same kind is very commonly seen in asthmatic patients labouring under that complaint, who will often live in one place with tolerable ease, while they are oppressed with painful difficulty in another a little removed from it, either by distance or any sensible qualities in the air. This, however, is more remarkably the case at a short distance from the sea coast than in an inland situation.

The healthy and natural condition of the animal spirits, are never more amiably displayed than in the amusements and playfulness of children, who can find delight in every thing, in a stock or a straw, and whose cheerfulness reflects a gaiety on all around them, impressing every well ordered mind with feelings of gratitude and adoration to the Author of so much joy and gladness.

The transition from hypochondriasis to insanity might seem to be easy, but though extreme cases may approach near to one another, (see *Mental Diseases*) there is usually a marked line of distinction between them; and it consists in this, that in the former the feeling alone is concerned, while the understanding and reason remain unimpaired, but in madness the understanding itself is perverted. In a sound state of mind, the imagination and the reason support and minister to each other, the one affording a perpetual succession of ideas, enlivening the fancy with new and shadowy pictures, while the judgment is employed in correcting by the standard of truth. When, therefore, the imagination is so vivid as to overcome the power of the judgment, or the judgment so weak as to be unable to correct the errors of the imagination; in either case, that condition is produced which is properly called madness.

That madness itself may be produced by nervous excitement, seems to be proved by the cases of puerperal insanity; for this will occur in persons nowise liable from constitution or inheritance to such an affliction. And although it wears for a time all the appearances of real madness, yet it so far partakes of the more lenient character of nervous diseases, that when the sensibility of the frame has had time to recover its proper tone, that is usually after a few months have elapsed, all future derangement of intellect entirely ceases. In other cases where anxiety has been the immediate cause of madness, a recurrence of the disease has too frequently raised a suspicion that its origin may really have been from a deeper source, and that it has only been brought into action by some impression upon the mind more vivid than usual. And it must be remembered, that when the imagination is once excited to extravagance, and blazes into madness, it is not a withdrawal of the cause, whatever it be, that will arrest the effect, the removal of the kindling fuel will not extinguish the burning heap. Whether the understanding be disordered or not, it is always right to struggle against such impressions, which the more they are indulged, the firmer they establish themselves, and the harder it is to shake them off. And this is true, whether the cause of these diseased feelings be real or only imaginary, for it is well known that no disease is more obstinate than a false apprehension of disease. The most perfect state of bodily health will not render a person secure against the invasion of these visionary troubles, which sometimes, like a blasting wind, destroy the fairest prospects of human enjoyment. But in estimating a patient's expressions, it is necessary to be circumspect lest we attribute to hypochondriasis what is the effect of some real but deep seated and less obvious bodily disease. In this the pulse will usually be the safest guide. If that be permanently quicker than is natural, especially if it be accompanied by any of the ordinary signs of hectic fever, (see *Hectic Fever*) there will be reason to suspect some latent seed of growing mischief, which will demand a patient investigation on the part of the medical attendant, and a patient perseverance in medical discipline, on the part of the patient. Yet even here we may be deceived, if we do not pay proper attention to all the attending circumstances, for a quick pulse, and languor, and loss of strength and profuse perspiration, will sometimes, especially in females, be the consequence of long confinement, independent of any organic disease. This state of debility attended with many of the symptoms of hectic fever, is often the result of too long confinement, and a want of ventilation of the lying-in apartment; and many females in the middle, and especially the higher classes of society, suffer from this cause. The removal of the patient to another room, the frequent shifting of well-aired bed and body clothes, the keeping bowels moderately open by a solution of Epsom salts in the infusion of roses, and the taking small doses of quinine dissolved in acidified infusion of roses, are the best means that can be employed. The body too should be sponged with a mixture of equal parts of common spirits, vinegar, and rose water. The chill should at first be taken off this mixture, and it should be gradually brought to the temperature of the air. Or the sponging may be

conducted in the same manner with the nitro-muriatic bath, the composition of which will be found under the article on *Muriatic Acid.* In those cases, however, of great nervous excitement or mental wandering, which is sometimes attendant on, or occurs soon after child-birth, it behoves the attendants, whether professional or otherwise, to be especially watchful. It is always desirable to keep the body in a cool, tranquil, and healthy condition, and to prevent as much as possible every source of irritation from within or from without, particularly such as may arise from fullness of the vessels, seeing that apoplexy is a frequent termination of such disorders. But beyond a general principle, there can be no general rule applicable to all cases of so very variable a disorder, yet if little can be done to cure it, perhaps more may be done than is commonly supposed to prevent it. With this view it will be right to keep in mind the balance of the imagination and judgment, before alluded to, and the former must not, like an unruly steed, be suffered to have its head, nor the latter to lose its command. The imagination must be trained to proceed gently, keeping out of the way of all such circumstances as might be liable to excite it, while the judgment is gradually strengthened by wholesome reading, and quiet conversation and study of any kind, that will fix the attention, and induce a tranquil exercise of the understanding, and fill it with realities and sound principles, and steady it by just conclusions. Dr Heberden, in his excellent paper on nervous diseases, lately read before the Royal College of Physicians of London, to which we are indebted for many of the thoughts and illustrations in this article, concludes by observing on the mental and moral treatment of the nervous, 'that all the paths of learning are open to their purpose, and above all, the doctrines of religion. But it must be religion in its purity and simplicity, as it was instituted by its author, and preached by his apostles, not as it has been perverted by the unskilful hands of visionaries and enthusiasts, who are apt to supply food rather than physic to a distracted mind.' It is pleasing to reflect on such sentiments expressed by a court physician, and one who has always moved in the higher circles of society, and expressed too in the presence, and met with the approval, of so many learned physicians. It affords one evidence, at least, that the professors of medicine are not all disciples of scepticism, materialism, and infidelity, as some would have us believe. We cannot conclude this paper with more appropriate counsel and advice than that tendered by Dr Reid. 'To command or advise,' says Dr R. in his inimitable work on Insanity, and Nervous and Hypochondriac Affections,' a person labouring under nervous depression to be cheerful and alert, is no less idle and absurd than it would be to command or advise a person under the direct and most intense influence of the sun's rays to shiver with cold, or one who is "wallowing naked in December's snows," to perspire from a sensation of excessive heat. The practice of laughing at or scolding a patient of this class is equally cruel and ineffectual. No one was ever laughed or scolded out of hypochondriasis. It is scarcely likely that we should elevate a person's spirits by insulting his understanding. The malady of the nerves is in general of too obstinate a nature to yield to a sarcasm or a sneer.' In another part of the same invaluable work, Dr R. expresses himself in language equally elegant and pertinent to our purpose. 'He who, in the study or treatment of the human frame, overlooks the intellectual part of it, cannot but entertain very incorrect notions of its nature, and fall into gross and sometimes fatal blunders in the means which he adopts for its regulation or repair.' These are sentiments which not only professional, but non-professional attendants, and the friends and associates of the nervous and hypochondriac, should ever bear in mind in all their interviews with those afflicted, but too often unpitied and neglected sufferers. See *Nerves, Hysteria, Hypochondriasis, Mental Diseases,* &c.

NETTLE RASH. An eruption similar to that produced on the skin by the sting of nettles, whence the name is derived. Nettle rash is frequently preceded by nausea, febrile symptoms, and headache, which symptoms generally become relieved when the rash comes out freely. In other cases, however, this eruption appears suddenly, and often vanishes, as rapidly re-appearing on some other part of the body. It is generally symptomatic of disorder of the digestive organs, and in some persons is produced by certain articles of food, which disagree with them. The articles of food which most generally produce it are, shell-fish, unripe fruits, almonds, pastry, &c.

The eruption generally first commences between the shoulders, or over the breast, and is attended with an intolerable heat and itching. Sometimes there is vomiting in the first instance, but more generally the uneasy symptoms which have preceded it, are relieved on the appearance of the eruption. The treatment consists in emptying the bowels by means of a slight mercurial purge, as four or five grains of calomel, followed by repeated small doses of some gentle saline aperient, and if there be very great irritation of the skin, the warm bath at a low temperature (little more than tepid) may be used. In some cases where the cause can be traced to some offending article of food, an emetic, followed by some gentle aperient, will remove all the symptoms.

NEUTRAL SALTS. Compounds of an acid with some alkaline or salifiable base, in

which the acid and the base are combined in such proportions that they neutralize each other, forming a new compound, possessed of new properties. Thus the tartrate of potass, the sulphates of soda and of magnesia, are neutral salts.

NIGHT BLINDNESS. There is a remarkable affection of the eye to which the term *hemeralopia* or night blindness is given, and where the amaurotic affection is intermittent and periodical. (See *Amaurosis.*) The patient sees very well during the day, but the sight becomes defective as twilight approaches, and is totally suspended during the night, when vision again becomes perfect as the sun rises. This is an affection which is rarely seen in Britain, or in similar climates, but it is by no means uncommon in the warmer regions of the globe; and it appears to arise from excessive stimulation of the retina occasioned by the strong light to which the eye is exposed in those countries during the day, so that the retina is not sufficiently excited for the purpose of vision, by the weaker light which exists at night. The affection proceeds in certain cases to such a degree, that an individual who has seen quite well during the day, when night comes on, finds that the power of vision is so completely gone, that he is unable to see the light of a candle brought close to the eye. This affection will last for a considerable length of time, but does not terminate in loss of vision; on the contrary, the affection at last goes off, and the sight is recovered.

Blisters to the temples will be found the most efficacious mode of treatment. Mr Lawrence says that he has seen the affection in a few instances in England, but the cases were all such as had originated in the East or West Indies, and where persons have experienced it after their return. After suffering for a length of time in those regions, it has given way to mild antiphlogistic treatment, and blistering, and purging.

The two most fruitful sources of this disease, even in warm climates, is the want of a sufficient shade for the eyes, or wearing a head dress without a sufficient capacity of brim, and the over indulgence in spirituous and vinous liquors during the hottest period of the year. We have known an attention to these circumstances, without the aid of any other medicine than a blue pill every third night, and a Seidlitz powder or two next day, effect a cure even where the disease had existed for same time after the usual dose of spirits and wine were gradually diminished, and a proper shade during the day adopted. See *Day Blindness* or *Nyctalopia*, under which article *Far Sightedness* will likewise be found

NIGHT-MARE. An uneasy feeling of oppression at the chest and epigastric region during sleep, accompanied with the sensation as if some body were placed upon the lower part of the chest; the sufferer generally dreaming at the same time that there is some hideous shape sitting upon him, which in spite of all his efforts he cannot shake off, and not unfrequently awakens with a scream. The ancients attributed this annoying disorder to be caused by the midnight sports of the Fauns, who they supposed thus amused themselves at the expense of the unfortunate individual. This affection arises from indigestion or flatulence; however, produced more particularly by heavy suppers, drinking, &c., and sometimes from an awkward position in bed, such as lying with the head too low, or folding the arms tightly across the chest. The remedies for these different causes are too obvious to require further comment.

NIPPLES. Women, whilst nursing, are subject to painful affections of the nipples, caused by the irritation of the frequent suction by the child. In cases where the part is red and painful, it should be bathed with warm water, and then dressed with a little bismuth ointment thinly spread on linen. This being washed off before applying the first dressing, and the opposite breast being used to suckle the child for a day or two till the irritation subsides, and then it should be frequently bathed with a decoction of oak bark, or a weak solution of sulphate of zinc (of about half a grain or a grain to the ounce of rose water) three or four times a-day. In some cases stimulating applications are requisite from the first, and then the above wash may be used, or an ointment composed of half a dram of balsam of Peru, to the ounce of lard, the part being always carefully washed before applying the child to the breast. In some cases a nipple shield having a cow's teat fixed to it, is applied over the breast, the child drawing the milk through the teat. Or it may be necessary to stop nursing the child for a time, the milk being then drawn off by means of nipple glasses.

NITRE, OR THE SALTPETRE of commerce, now known by the chemical name of NITRATE OF POTASS, or as Latinized, *Nitras Potassæ*. This salt is formed by the union of nitrous acid with vegetable alkali, and is formed in vast beds in India and other warm climates, and it is from the East Indies that almost all the nitre used in Britain and Ireland is imported. During the late wars it was manufactured by a chemical process in France, being one of the constituents of that destructive compound, gunpowder. It is of great use in the arts, and burned with different proportions of tartar forms the substances called fluxes.

It is inodorous, and has a cool, bitterish, and penetrating taste; its crystals are six-sided prisms, brittle, soluble in seven parts of water at 60°, and permanent in the air.

Nitre possesses diuretic, refrigerant, and when applied externally, cooling and detergent properties; it also proves purgative in large doses; but for this purpose, or in the quantity required, it never ought to be used. It is certainly a useful article of the materia medica, and is used in dropsies, fevers, herpetic eruptions, active hemorrhages, and gonorrhea, but less frequently in this latter complaint than formerly, It is employed in gargles in cases of inflammation of the tonsils, or throat, and sometimes a small bit is allowed to dissolve gradually in the mouth in these cases. It is with this view, too, that the Edinburgh college have ordered nitre troches, or lozenges, the only formula that bears its name in any of the pharmacopeias. The following is the formula for these lozenges :—

Nitrate of potass, one part,
Refined sugar, three parts.
Rub together to powder, and form them with mucilage of gum tragacanth into a mass, to be divided into troches or lozenges.

These possess the virtues of the nitre in an agreeable form, and may be used in slight inflammatory sore throats, measles, and fever, drinking at the same time freely of some demulcent mixture, such as emulsion of gum Arabic, or infusion of liquorice and linseed, as, when taken without any liquid, they are apt to occasion uneasiness about the stomach. The same observation will apply to the use of the nitre alone, when allowed to dissolve in the mouth. The usual dose of nitre is from ten grains to half a dram, in almond mixture or any of the other vehicles we have named. Nitre is likewise used in the preservation of animal food, especially beef, pork, and butter; it communicates a redder colour to the muscular part of animal flesh. A very general proportion which will answer either for beef or butter, is one part of nitre and one of sugar, and two parts of good salt intimately mixed together.

Accidents from swallowing nitre in too large doses, or by mistake, are not so common as formerly, as the sulphate of soda, or Glauber's salts, especially in large crystals, are now almost entirely gone out of fashion, being either superseded by Epsom salts, or the Glauber salts, in small crystals. Nitre may, however, be easily distinguished from either Glauber or Rochelle salts, in large crystals, by throwing some of the suspected salts on burning coals, and if it is nitre it crackles and gives a beautiful white flame. If powdered and sulphuric acid be poured upon it, it gives out white vapours, neither of which will happen with either Glauber or Rochelle salts. When, however, taken in doses of an ounce or more, heartburn, nausea, painful vomiting, purgings, convulsions, syncope, or fainting, feeble pulse, cold extremities, with tearing pains of the stomach and bowels, ensue. Difficult respiration, a kind of intoxication, and frequently death, follow in the train.

The *treatment* is to dilute freely with milk or rennet whey, and bland demulcents, such as infusion of linseed and liquorice, almond emulsion, and giving enemas of butter melted in any of these demulcent infusions, and after bleeding when the pulse is hard and quick, administer opiates. The particular cases in which nitre is used, will be learned from our prescriptions for various diseases.

NITRIC ACID. In the new London Pharmacopeia (1837) this acid is directed to be prepared by mixing two pounds of the dried nitrate of potass (sal nitre) with the same weight of sulphuric acid, in a glass retort, and then distil off the acid from a sand bath. This acid is liquid, colourless, and transparent, with a suffocating odour, and a corrosive, caustic, and very acid taste, tinging the skin yellow, and absorbing water from the air. On account of the powerful corrosive and solvent nature of this acid, it was formerly denominated Aqua Fortis, or strong water.

One fluid ounce of the acid prepared as above directed, diluted with nine fluid ounces of distilled water, is called Dilute Nitric Acid, and in this diluted form is more convenient for internal use than in its concentrated state.

This acid possesses antiseptic, antisyphilitic, and tonic powers, and is used largely, diluted either in plain water or some bitter tonic infusion, in cases of indigestion, chronic affections of the liver, and as an auxiliary to mercury, in the cure of the venereal disease. Dr Graves affirms, on extensive experience, that in what is called cases of secondary syphilis, with red and relaxed sore throat, and even in chronic sore throat, without syphilis, that he had found nitric acid, with sarsaparilla, produce the most beneficial effects. In the latter case, says the doctor, there is great relaxation, accompanied by redness, commencing at the uvula and extending all over the fauces, and sometimes to the epiglottis, so as to produce a troublesome hoarseness. The uvula is also frequently relaxed, and its point coming in contact with the root of the tongue gives rise to tickling cough and tendency to vomit. 'To those cases I have extended the use of sarsaparilla and nitric acid, I have found them attended by very signal advantage. Nitric acid and sarsaparilla,' continues the doctor, 'form one of the best remedies we are in possession of for treating successfully that cachectic state of the constitution which arises from the abuse of mercury, or from any other cause.' One dram of chips of quassia may be infused in a pint of cold water for a night, the infusion to be strained in the morning, and as much of the diluted nitric acid added as will render the infusion agreeably acid. This may be taken in the course of the day. And as the remedy is very cheap, a fresh infusion may be made every night.

Those labouring under ulcerated legs and old sores will find the above acid infusion of great benefit. To prevent the acid affecting the teeth, it may be drawn up through a glass tube or quill. When quassia cannot be procured, three drams of the dried tops of lesser centuary may be substituted, but we have as much confidence in the decoction of dandelion, burdock-root, and juniper tops, &c., as in sarsaparilla, especially of the quality that drug is frequently met with in the shops.

The acid largely diluted with water, and sweetened, forms an excellent antiseptic drink in malignant typhus and scarlet fevers.

This acid, so useful not only in medicine, but in the arts and manufactures, is, when swallowed in too great doses, or in an undiluted state, a most corrosive mineral poison.

If the acid be strong or undiluted, and the dose large, a burning sensation is immediately felt in the throat, œsophagus, and stomach, and excessive vomiting and speedy death are the consequences. If, however, the acid has been diluted, although not sufficiently so, or a less dose has been swallowed, (for indeed the smallest dose of the undiluted acid, will, if immediate means are not used, take away life,) the patient may linger for a considerable time, in which case he vomits at intervals shreds of membrane, which have an insupportable fœtor; the constipation of the bowels is the most obstinate, and stools, when obtained, are accompanied by the most excruciating pain and agony. A case occurred in the Hospital de la Charité, in Paris, about three years ago, when a man, aged thirty-four, lived three months after swallowing a dose he intended for a poison of this acid, and the body on dissection, presented the appearances produced by the poison.

The *treatment*, as already stated, must be prompt and decisive, if any good is expected to be done. Give large and frequently repeated doses of solution of soap, or a mixture of magnesia, in infusion of liquorice root, or linseed. The greater quantity of the bland alkaline absorbents are speedily administered so much the better. Then let the stomach be evacuated by the stomach pump, or such large draughts of linseed tea, as with tickling the fauces will procure vomiting. If the inflammatory symptoms run high, bleeding and purging will be necessary, and the bowels should be opened by enemas of castor oil, and beef tea, or mutton broth.

In cases where death takes place, almost immediately, the ravages of this corrosive poison are easily discovered. Orange coloured spots are to be seen on the lips, chin, and hands of the deceased, and a yellow mucous matter covers the inside of the œsophagus, and stomach, and every other part the acid has passed over or touched. The mucous membrane, or lining of these viscera, is also found converted into a fatty substance, and the stomach is often perforated.

The same symptoms, mode of treatment, and effects produced by the nitric acid, are to be understood as equally applicable to all cases of poisoning, by what is known by artists as aqua regia, nitro-muriatic acid, double or single aqua fortis, or fuming nitrous acid, as these are used extensively in the arts, and may be swallowed by accident or mistake.

NITRATES; compounds of nitric acid with a salifiable base.

NITRATE OF SILVER; lunar caustic. See *Caustics*.

NODES. Osseous tumours formed in consequence of inflammatory action in the bone or its investing membrane, the periosteum. During inflammation of these tissues a gelatinous substance is effused between the periosteum and bone; earthy matter is subsequently deposited in this, and a node, or osseous tubercle, is thus produced. These tumours are of frequent occurrence in cases of syphilitic, or mercurial periostites.

NOLI ME TANGERE; a term used in surgery to denote a peculiar malignant form of ulceration, attacking the nose; but as it is not a disease which can be entrusted to the domestic practitioner, we forbear entering on its description.

NOSE, Bleeding from the, or *Epistaxis*. Systematic writers have enumerated two species of this affection, viz., idiopathic and symptomatic. It is, however, more frequently symptomatic of some other disease, and is generally an effort of nature to relieve a congested or plethoric state of the blood vessels about the head, and unless immediate danger be apprehended, it is for the most part inexpedient to interfere with the discharge. It frequently comes on without any previous warning; at other times it is preceded by pain, heaviness and swimming in the head, noise in the ears, flushing of the face, heat and itching in the nostrils, throbbing of the temporal arteries, and a quick pulse.

The treatment is very simple where much general excitement prevails, and the patient is aware by former warnings of what is likely to follow. The strictest cooling or antiphlogistic regimen is to be adopted, if the patient is young and plethoric; and the bowels should be freely opened by taking the third part of a mixture composed of one ounce of Epsom salts, and one grain of emetic tartar, dissolved in six ounces or a gill and half of common or peppermint water, every three hours. Where the disease, however, is associated with old age and debility, tonics and astringents will be found most efficacious, and one of the best that can be employed is a wineglass of the compound infusion of cinchona (or barks) with diluted sulphuric acid, three times a day, after the bowels

have been previously opened, with a dose of some gentle laxative, or by a draught composed of half an ounce of castor oil, and the same quantity of compound tincture of senna and of simple syrup well shaken together. Indeed, in old people this discharge should be as speedily checked as possible, as when it is once allowed to proceed the length of producing syncope or fainting, and returns frequently, it may be followed by very unpleasant, and it may be fatal consequences. When the discharge of blood is excessive in either young or old, the following means may be resorted to, always adopting those more immediately within reach; at the same time observing that in no case should the bleeding be stopped when it happens to a person otherwise in good health, or those who are full and plethoric; neither ought it to be checked too soon when it relieves any disagreeable pre-existing symptom, such as headache, giddiness, heaviness, noise in the ears, or flushing of the face, &c.

Dossils of lint, or bits of soft rag moistened with a saturated solution of alum, may be put in the nostrils. Equal parts of vinegar, cold water, and common spirits, is likewise a very good cold evaporating application to the brow and temples, or for moistening dossils for the nostrils. Plunging the head in a pail of cold water impregnated with salt, has been had recourse to when other means have failed. Or holding the nose between the finger and thumb for sometime often succeeds. To prevent a return in the young and plethoric, leeches may be applied to the temples to the number of from ten to twenty, and the bleeding encouraged in the way recommended in the article *Leech*. All heating, spirituous, vinous, and strong fermented liquors of every kind should be avoided, and animal food only indulged in with moderation. Half an ounce of dried red rose leaves are to be infused in a quart of boiling water, and when cold two ounces of Epsom salts are to be dissolved in the infusion, which is then to be strained, and one dram of elixir of vitriol added to the strained mixture. Of this mixture a large wine glassful or an imperial half gill, may be taken night and morning. This plan, if persevered in, will relieve those disposed to an overflow of blood to the head, and consequently prevent bleeding at the nose.

The aged should follow a different course, avoiding, however, hot spirituous liquors in the form of punch or toddy, and take a mild but nourishing diet, chiefly farinaceous, such as rice, arrow root, bread-pudding, sowens, tripe, cow-heel, veal broth with rice, and white fish or trouts. Two or three of the pills prescribed under the article *Abdominal Irritation*, may be taken night and morning with advantage, and the compound cinchona mixture, as ordered above, will be found useful preventive means. When this disease occurs in females, as it sometimes does, in consequence of the suppression of the menses, means should be taken to restore that discharge, when the hemorrhage from the nose will cease.

NURSE, Sick. Sick nurses should not, as they most frequently are, be selected from that class of society who adopt the profession from necessity, without possessing the requisite qualifications. A sick nurse, whether male or female, should be a person of a truly feeling, moral, and religious character, without any intermixture of a morose, gloomy disposition. Cheerful without levity, and always willing to express their views of the patient's case in such terms as are rather calculated to soothe than to terrify. Indeed the duties of a sick nurse are often of so tiresome and harassing a description, that no prospect of pecuniary reward could sustain them under the annoyances, fatigue, anxiety, and watchfulness, to which they are frequently subjected, and it is therefore the more necessary that they should be inspired not only with a deep sense of the moral responsibilities attached to their office, but with a kind, sympathising, and enduring disposition, and divested, as much as it is possible for human nature to be, of all selfish and personal considerations.

In addition to these qualifications, a sick nurse should possess a sound hale constitution, and a capability of dispensing with the usual quantum of sleep required by healthy individuals. There are few young persons therefore who are in this respect qualified for the office of a night sick nurse, as they are incapable of subduing the disposition to drowsiness peculiar to their age, were they even endowed with the other requisite qualifications. In general, however a sick nurse should be selected from those who have arrived at, or near the meridian of life. It is necessary too that they should not possess those keen feelings, too often affected, which unfits some from rendering their services to the afflicted, but individuals who can look on pain and sickness with that composure which not only qualifies them for the duties they are expected to perform, but which, when of the right kind, never fails of securing them the grateful and affectionate regards of the patient. There is not a more mistaken opinion that obtains among the great majority of mankind than that medical, and especially surgical practitioners, and their assistants of every class, among whom may be enumerated sick nurses, are cruel and unfeeling. On the contrary we hold it to be, with few exceptions, an established fact, that if there is any one class of society that possess a greater share of the milk of human kindness than another, it will be found to be those very individuals who are so frequently libelled as cruel and unfeeling. Indeed their voluntary adoption of the curing and nursing

the sick or wounded takes its rise from the early or constitutional inheritance, and cultivation of the finest sympathies of humanity. To return to the subject, the sick nurse should not only possess the moral and physical qualifications we have detailed, but should be familiar with sickness and disease, and it will be a great additional qualification if they have themselves been personally subjected to the discipline of a bed of sickness or pain. In fine, it is necessary in common language, that they should serve an apprenticeship to the profession.

Grandmothers, with all their infirmities of age, are often the most watchful and attentive class of sick nurses; and, except in cases of highly infectious diseases, the younger members of families, especially females, should not, as they now too frequently are, be excluded from the sick room. Witnessing the sympathising attentions of a mother or grandmother to a sick father, sister, or brother, they are impressed with kindred feelings, and acquire a kind of practical knowledge, neither of which could be produced or imparted by the most touching, judicious, and prescriptive essay that ever was or could be published on the subject. That a well-informed, affectionate, and experienced familiar friend, or relation, constitutes one of the best of sick nurses, we have often seen evinced even among the lower classes of society, where individuals have recovered at home, under many privations, with the attentions of a dispensary physician or surgeon, who had been discharged as incurable from some of our best appointed hospitals or infirmaries. Nothing was wanting by the patients in these heaven-born institutions but only the *nurse;* and far be it from us even to insinuate, that the nurses in our public hospitals are generally deserving of censure; far otherwise; for, from a pretty extensive observation, they are watchful and attentive, and many of them even affectionately sympathetic, anticipating and providing for the wants, and as far as their rules permit, even gratifying the wishes of the patient.

To enter on the general qualifications of a sick nurse, would only be to repeat much of what is stated under the section on the medical, dietetic, and general treatment of the various diseases in which the surveillance of such an attendant is required.

In addition to a considerable knowledge respecting the general management of the sick, the nurse should always be tidy, neat, and clean in her own person. A knowledge of cookery to a certain extent, and which few well informed female, either in the middle, or among the working classes of society, in these kingdoms, do not possess, is also indispensably necessary. The lamented and talented Dr Gooch was so well convinced of this, that he proposed the establishment of an order of Protestant Sisters of Charity, or female nurses and physicians, to give that real assistance which the law merely affects, or then did affect, to bestow. And another very sensible physician, Dr F. Skrimshire, proposes, in a recent work, to make parish clergymen perform the office. Dr Gooch's scheme, which is published in Southey's Colloquies, has never been put into execution, whether from its clashing too much with the instinctive delicacy and reserve of the females of this country, or from its not having been proposed to the classes most likely to adopt it, by those who have immediate influence over them. That such a proposition, however, should have been broached by such a man as Dr Gooch, shows clearly how bad was the state of the sick poor, even in the villages and hamlets of England, which it was intended to remedy. If, however, such an order of sick nurses, and domestic female physicians, were required in England, how much more requisite in the highlands and islands of Scotland.

The ample instructions for the preparation of several articles of sick diet, under the heads *Arrow Root*, *Beef Tea*, *Ass Milk*, and other medicated and diet drinks, as well as the rules to be observed in the preparation, application, and dressing of blisters, sinapisms, cataplasms, or poultices, all of which duties generally devolve on the sick nurse, may be consulted with advantage, and cannot fail in suggesting many useful and valuable hints, even to those who have already some experience in attending on the sick.

NURSE, Wet. In the article *Lactation*, we have considered chiefly those circumstances that relate to the infant, and in this we shall confine our remarks more especially to the characteristics of a good nurse, so as to afford a kind of directory to those families who are under the painful necessity of employing any other than the mother to suckle her infant. We say painful necessity, for we know not a more unnatural, barbarous, and unfeeling practice, than for a healthy mother, every way fitted by nature to be a nurse as well as a mother, consigning over the care of her child to another, and too often also it may be not only to a hireling and mercenary woman, destitute of natural feeling, and a due sense of moral responsibility, but often the subject of some noisome, secret, loathesome disease. The practice is not only unnatural as it regards the infant, but equally so as it regards the mother; and many a young blooming lady in the higher, and even in too many instances, in the middle classes of society, fall early victims to disease and death by an adoption of the very indefensible practice of consigning the duty of suckling their children to others. Let us only suppose a case of a fine healthy young lady of seventeen years married to a gentleman of fortune. In little more than

nine months after marriage, she gives birth to a child. But who could dare to imagine that this young mother, who could afford so well to procure a substitute, would submit to the pleasure, nay, in fashionable language, the drudgery of suckling her son, and the heir of his father's estate. The contrary is so well known, that every young wife, aye, and some who are not wives among the working classes of society, in a state of pregnancy for some miles round, and for some months before this young lady gives birth to her child, are anxiously inquiring when the event may happen, and hoping and praying it may only do so a week or two after they are delivered, as in that case they will have some chance of being selected as nurse, admitted into the squire's house, and participate in all the pleasures and profits to be derived from suckling the heir to a great estate. The child of the hireling nurse must in this case be committed to the care of a less fortunate hireling, and here one unnatural and barbarous act leads to the perpetration of two, and extends a practice which no physician, physiologist, moralist, or divine, can conscientiously defend. But to return to our young lady; ere another year elapses, she gives birth to another, and in this course proceeds, and ere she is twenty-four she is the mother of six children. The constitution of woman was, however, never intended for procedure of this kind, and although the parties in the case to which we allude, lived a temperate and regular life, the mother of six begins to droop, a trip to a watering place, and ultimately to the continent, is recommended and adopted; but nervous and rheumatical affections set in, paralysis of the lower extremities follow in their train, and ere the blooming bride of little more than sixteen has arrived at her prime, a goal she never attains, she is surrounded by physicians, nurses, fumigating apparatus, baths, electrical instruments, and all the parapharnalia of an aged paralytic. This might all have been prevented, had she only submitted to the pleasure of suckling her offspring, one of the greatest pleasures a mother ever enjoyed, a fact to which every mother who has suckled and reared a family, will most unhesitatingly subscribe. It is, however, useless to waste our columns in remonstrating with those who follow the dictates of fashion, rather than those of nature, reason, and we will add revelation.

Let it not, however, be imagined that we consider all mothers unnatural who consign their children to the care of others, or that we consider every nurse who suckles a child for hire, either mercenary, careless, or devoid of natural affection; we are on the contrary convinced, not only from our own observation, but from the testimony of others, that there are many nurses who acquire and feel an affection for the child committed to their care little or nothing short of that felt by an affectionate mother for her own offspring.

We shall then first shortly allude to those circumstances which disqualify a mother from the delightful duty of suckling her child, and then consider the qualifications required in a wet nurse, whether the mother or a hired nurse, with a few remarks on the diet, regimen, and general treatment of nurses. Disease, especially organic and complicated diseases, and more especially affections of the lungs, liver, scrofula, rickets, leucorrhea or fluor albus, cutaneous eruptions, gravel, stone, gout, syphilis, violent nervous affections, such as hysteria, epilepsy, and convulsive affections of every class. There are some women, too, affected with lowness of spirits, indigestion, obstinate costiveness, bilious affections, headache, deafness, or who are very thin and delicate; and all such diseases and affections unfit a woman for suckling her offspring. There are likewise cases of malformation or flattening of the nipples, and even some women have no secretion of milk, and this want or disease is termed *agalaity;* but this must not be mistaken for those cases in which the secretion of this fluid does not commence for two or three days after delivery; but if the breasts are properly developed, there may be an abundant supply in a week afterwards. In those cases where there is no other impediment but the flattening or even apparent want of a sufficient nipple, it may be attempted to be drawn out by an older child, or even by an adult, or by a breast pipe, or the breast pump, as figured in the plate on surgical instruments.

Some writers of eminence, among whom is the celebrated Rousseau, held that an infant could not be injured by the blood of the mother who nourished it, and to this subject we shortly alluded in our article *Lactation,* but this is a great error, and in our opinion, one which, if acted upon, might lead to serious results. It was too, and still is, an opinion with many both in and out of the profession of medicine, that consumption is arrested by suckling; but this also is a gross mistake, for although pulmonary consumption is often arrested by pregnancy, which is owing to the determination of blood to the womb for the nutrition of the fœtus, yet when the child is born, the blood again is determined to the chest, and the disease of the lungs rapidly progresses, and death ensues, as the process of suckling is not a sufficient counter-irritant to arrest the destructive disease in the lungs, while the debility it produces accelerates the fatal termination. Indeed those who are in delicate health from whatever cause, will be greatly injured by becoming wet nurses. Weakness in the loins, sinking at the stomach, loss of appetite, extreme paleness of the countenance, the bowels being generally confined, though sometimes relaxed, with considerable emaciation, are all symptoms proving that a woman is not ade-

quate to the duties of a nurse, and that the sooner she relinquishes it, if she has commenced it, so much the better.

The moral character and habits of a woman are of equal importance to the faithful discharge of the duties of a wet nurse, as her physical qualifications. A nurse ought, therefore, to avoid balls, theatres, and crowded assemblies, as well as all frivolities, as her infant cannot be deprived of its natural food for several hours, and will not be properly nourished by any other description of aliment. The passions of the mind alter the quality of the milk instantaneously, and render it injurious to the infant; tumultuous passions acting more violently and rapidly, and those of a more depressing character more slowly, but with equal certainty. A child has been frequently and suddenly attacked with convulsions, when suckled by the mother in a fit of rage. The affections, feelings, and passions of jealousy, envy, shame, fear, disquietude, sadness, and chagrin, and all those of a kindred character, exercise a greater or less pernicious effect on the breast, milk, and consequently on the health of the infant.

The physical and moral causes we have enumerated, and others that may be easily perceived by an attentive reader of our comments on this and the kindred subjects referred to at the end of this paper, which are opposed to the propriety of a mother acting as nurse, are supposed to prevail more in cities and large towns than in the country; but this supposition has never been established on documentary evidence. The secretion of the milk may be prevented for a few hours, perhaps longer, by mental anxiety during labour, but if the breasts are well developed, they will perform their functions, especially if the child is placed in the mother's bosom. Dr Graves of Dublin furnishes an apt illustration of this. He was called to visit a young lady immediately after her first delivery, who was much dejected lest she should not have breast milk. The Doctor ordered her some German milk powders, a few grains of calcined magnesia, and a thing that could exert little influence in any way, and on the next day she had an abundant supply of milk, the state of her mind having arrested the lactiferous secretion; and there are many cases of this kind which officious female visitors offer as apologies for recommending a hired nurse.

With respect to the choice of a nurse, or the characteristics of a good nurse, it having been first satisfactorily proved that there are sufficient reasons for depriving the infant of maternal nursing, there are two modes of rearing the child that present themselves to our notice; and these are, nursing the child on the milk of the inferior animals, the cow, goat, &c., and other alimentary substances, or on that of another woman. The first of these modes is adopted among the poor, or in some few situations where a wet nurse cannot be procured; those, however, who have it in their power, will feel little difficulty in resolving to adopt the latter mode. Breast milk approaches nearest the object of nature, and the stomach of a new born infant will more readily accommodate itself to aliment prepared by one of its own species than of any other. The gastric juice of the infant is best suited to act on the milk of its own species; but so perverse have been some continental writers on this subject, that they have ever preferred mercenary to maternal nursing, although there is certainly no wet nurse equal to a healthful mother, while there is no doubt a healthful hired nurse, with suitable moral qualifications, is superior to a delicate or nervous mother. It would indeed be an afflicting and humiliating circumstance, if there were as many real difficulties in the way of procuring suitable hired wet nurses for children so situated, but every day's experience proves that infants thrive well on hired, or what has been termed mercenary nursing, and that all wet nurses are not cruel stepmothers. 'Happily,' says Professor Capuron, 'the greatest number, at a moderate remuneration, devote themselves with an astonishing generosity to the well being of their foster children, and even most of them, it may be remarked to their shame, are preferable to mothers.' We can scarcely conceive to what kind of mothers Dr Capuron refers; certainly not to such mothers as are to be met with in Great Britain and Ireland; for as we have already observed, no person, however well qualified, can be preferable to a healthy, affectionate, temperate mother, for surely the Professor can allude to no other than immoral and intemperate mothers, and in this case he certainly would have truth on his side. The opinion, however, of hired wet nurses by the medical profession, or by the public in these kingdoms, have not been so very favourable as that of our French professor. It has been observed of those wet nurses who take children to nurse at their own houses, that scarcely one in a thousand takes proper care of her foster child, or even of her own; and Dr John Clarke, a gentleman who enjoyed the most extensive practice in midwifery among the higher classes in London, says, 'in some families six, and in others eight wet nurses had lost their own children;' and Dr Merriman, a physician no less eminent, very humanely observes in commenting on this passage, 'if ladies who employ wet nurses were, in commiseration of the sufferings of their unhappy infants, so far to interfere in their behalf as to insist on having them placed out under the care of sober, cleanly persons, and in open airy situations, and especially if they would refuse to take a woman whose child is very young, unless a wet nurse were procured to suckle it, they

would be the means of preserving many lives, and of preventing much lingering suffering to these poor victims.' A prodigious number of infants committed to wet nurses, have their constitutions enfeebled, and are affected with rickets, deformities of the limbs, tumid abdomen, and most of them are destroyed before the fifth year of their existence; and yet some of the finest children are reared by wet nurses. The chief causes, however, of this mortality among infants, is ignorance as to their management, and the stuffing system, which produces precisely the same effects on children, aye and on adults too, as the poulterers well know it produces on geese and turkeys.

Capuron gives an excellent, and we may add a full length portrait of a qualified hired wet nurse. 'It is necessary to attend to the age, constitution, or temperament; her health, character, and morals; to her habitation, mode of life, and to the quantity and quality of her milk. We ought to take her from the age of twenty to thirty-five years, of a good constitution, of moderate *enbonpoint*, that she be habitually healthful, and free from all disease, without apparent deformity, more brown than fair, and never red haired, (what does Capuron mean by this?) that her mouth be furnished with good teeth, her gums firm, and in a good condition, her breath sweet, her breasts of an ordinary size, traversed by bluish veins, the areola a little prominent, the nipple well pierced, and of a convenient length. We ought to reject her whose skin is covered with eruptions, whose perspiration is profuse and disagreeable, and she who has fluor albus engorgement of the glands, &c.' Her age should approach as near as possible to that of the mother of the child she intends to suckle, and the age of her own child as near as possible to the infant of her charge. Milk of six or eight months becomes white, thick, and caseous, and more indigestible than that of a woman who has recently born a child, and therefore enfeebles the stomach of a very young infant; and indeed the same remark applies to the milk of the inferior animals. Dr Merriman says he has seldom found the milk of nurses that have been recently delivered, answer so well as those whose children are eight or ten weeks old. They are not sufficiently recovered from the effects of parturition to undertake the duties generally required of a wet nurse; and Dr Underwood is of opinion the milk should be under six months. Both these able physicians, however, seem to have forgotten that women suckle from the hour of delivery with the greatest advantage to infants. It certainly, however, corresponds with physiology, and we will add experience and observation, that the milk which corresponds to the age of the infant, is more easily digested, and the milk that is too old disagrees with the infant, and cannot be continued till the proper age for weaning, without incurring the danger of disease. It need scarcely be remarked, that a wet nurse should be sober, and rather averse to strong liquors, which are never required to produce milk in healthy subjects; nor indeed in those that are delicate are their use to be permitted. Cleanly in her person, good tempered, careful, fond of children, watchful in the night, or at least not liable to suffer in her health from being deprived of sleep; she should likewise be active, sprightly, cheerful, not dull, stupid, sleepy, peevish, irritable, or morose; and possessing these qualifications in conjunction with a due sense of moral responsibility, she will not fail in being an excellent and efficient wet nurse.

Those in want of a wet nurse should, however, be on their guard against specious appearances, as many of those who offer themselves for such a situation, allow the milk to accumulate sometime before their examination by a midwife or medical practitioner; and by this proceeding the breasts will appear full in a woman having but a very limited supply of milk. Her appearance, general health, (and if alive) more especially the condition of her own infant in conjunction with an unexpected visit and examination, and especially satisfactory evidence of her probity and moral character, will enable a mother or her friends and advisers to form a tolerable correct judgment of the capabilities of a nurse. Indeed we conceive moral and correct conduct of so much importance, that it should be one of the first inquiries, because whatever physical capabilities a woman may possess, if she is destitute of the finer feelings of humanity, and a sense of the importance of the charge she is about to undertake, we would consider her unfit for a good and faithful wet nurse. The health of her own infant is an excellent test, for if the infant is feeble and emaciated, we may reasonably conclude the milk is not of the best quality; and on inquiry it will be found, that in addition to emaciation, the child is troubled with gripes, depraved motions of the bowels, a frequent desire to evacuate the bladder, and according to some high authorities, a number of other diseases. To make the matter more certain—for the health and welfare of an infant is certainly a matter of serious concern to every affectionate parent—the wet nurse should suckle the infant for a week before a final arrangement is made with her.

The diet and regimen of a wet nurse. On this division of our subject we need not waste much time, as plain nourishing food, such as the nurse has been accustomed to use, and such as her stomach approves and relishes, should be employed. Indeed a more mistaken opinion cannot obtain, than that rich stimulating food is required by wet nurses; on the contrary, many a good nurse accustomed to plain country fare,

has her own health injured by the sudden transition from her usual diet to that of the family into which she enters. A plain mixed diet of animal and vegetable food, especially farinaceous vegetables, is certainly to be preferred; and it may generally be regarded as a truth, that whatever agrees with the nurse, agrees with the child. High seasoned, salted, and smoked meats, rancid bacon, pork, wild water fowl, cheese, and indeed butter, except in very moderate quantities, should be strictly prohibited. As to spirituous liquors, or even wines, but especially the former, they should never be taken by nurses; but ale and porter, if the nurse has been previously accustomed to their use, may be allowed in moderation. Tea, especially if strong, should likewise be used in moderation, and with a considerable proportion of milk or fresh cream; and the same remark applies to coffee, the latter being greatly improved by adding equal parts of what is called soluble cocoa. Good broth made with barley or rice and other vegetables, is an excellent article of diet for a nurse. And a breakfast or supper may be made of well boiled thin oatmeal porridge or stirabout, and taken with milk or half a pint of good table beer, and a little sugar or molasses. This used to be a favourite breakfast with many of the nurses in the middle class of society in Scotland, and those who relish it can scarcely have a better, notwithstanding English prejudices. We have no objection, if the nurse pleases, to allow a cup of tea or coffee, and a water biscuit or dry toast, immediately after, by way of desert.

Nurses, however, who do not relish porridge, may be allowed a soft boiled egg with their tea or coffee at breakfast. A very general belief exists among many of the middle, and most of the lower classes of society, in some parts of England and Scotland, especially in cities and great towns, that porter or ale, especially the former, has a powerful effect in increasing the breast-milk; and even Underwood, so celebrated for his knowledge on this and kindred subjects, favours the opinion. Porter, however, is now constituted of such heterogeneous materials with a mixture of narcotics, that it cannot be recommended, except, as we have already observed, in very moderate quantities, and only to those who have been accustomed to its use. There are some London nurses who will swallow from three pints to two quarts, and even more, of porter daily, which is certainly by far too great a quantity for any wet nurse. Home-brewed, unadulterated ale, or good table beer, is certainly preferable; but many of the best nurses we ever knew, never tasted either, except what they took mixed with their morning and evening porridge, or stir-about. Home-brewed ale, or indeed ale made by the professed trading brewer, when composed of only malt and hops, or some other wholesome aromatic vegetable bitter, in moderate quantities, is certainly a salubrious beverage; and were the malt tax removed, or only reduced to a trifle, it would come into more general use, and we hope would tend in a great measure to banish its now pernicious rival, ardent spirits.

Dr Struve recommended two parts of milk and one of well fermented beer, previously boiled to rise over a gentle fire, and to be taken cold, as a great restorative in cases of debility caused by nursing; and he says that in a short time the strength was restored, and the milk increased. There is a similar composition used in some parts of Scotland, called Ale Posset, made by boiling about a dram of the dried flowers of marygold in half a pint of new milk, and warming the same quantity of good table beer, sweetened with sugar, to about the heat that tea or coffee is usually drank, and then by mixing them a whey is formed, which is taken warm by the nurse at bed-time. In fine, with respect to diet, we are of the opinion of Capuron, that the taste and habit of the individual ought to be more consulted than either theory or practice, if that taste is not very depraved; such as a taste for whisky, gin, or other ardent spirits, or a taste for porter or strong ale to the tune of three pints to two quarts daily, and as, if as we have sometimes seen, a predilection for drinking very strong tea, in more than ordinary quantity, three times a-day; in these cases it would certainly be necessary to keep the nurse in due bounds. As a proof, however, of the most simple diet enabling women to suckle a child, we need only adduce the case of the Irish peasantry, who suckle their children on potatoes, and it may be occasionally a little milk or fish, and seldom taste butcher meat, or indeed any other variety of food, except upon festivals and particular occasions; nay, not even plain gruel, or even oatmeal stirabout.

A wet nurse should take exercise both in and out of doors, and if her child thrives, it will afford many opportunities of motion if she is inclined to use them. Confinement while nursing injures both nurse and child. A sufficiency of sleep should be allowed, and in cases where a child is rather of a wakeful disposition during the night, another person should take charge of the infant early in the morning, and allow the nurse an hour or two of sleep. The bed should neither be too hard nor too soft, and as nearly of the same description as that to which she has been accustomed.

If a wet nurse does not live in the family, frequent and unexpected visits should be made to her residence, and a strict watch kept over her conduct to her foster charge. We do not mean a pragmatical meddling with her proceedings, or a servile watch over her every

step, or a magnifying of every real or supposed trifling delinquency, but the exercise of such a prudent and judicious surveillance as will satisfy the minds of the parents that the interests of their child are attended to. If the infant becomes emaciated without any visible cause, such as teething, if it is frequently crying, if a disagreeable smell is felt about its body or its cradle, there is some reason to doubt all is not right, and strict inquiry should be made into the causes. If again, we are told the child never awakes during the night, is very quiet, and sleeps well, it is more than possible that syrup of poppies, Dalby's carminative, or the child's cordial of some neighbouring apothecary or druggist, is employed to ease its pains and silence its infantile demands. These opiates, (for on opium in one shape or another this soothing effect depends,) will soon blunt the child's appetite, and produce a sort of tinge, and cause a kind of stare in the countenance, well known to an observant eye; and this affords good grounds for removing the child or discharging the nurse. Indeed vigilance is even necessary in some cases where the nurse resides in the house of the parent; and we have known lazy nurses administer syrup of poppies even under the most vigilant watch. It is scarcely possible without considerable aid, for a woman to do justice to two children, her own and a foster child, although we have known instances in which the foster child throve the best of the two. This, except among the lower classes, seldom happens in the present state of society, although mothers frequently nurse twins, and nurse them well; and we have known the wife of many a working man go through this labour and attend to the other concerns of a family without murmuring; aye, and we have known too, the wife of a poor labouring man nurse the motherless child out of charity, with equal care as her own

The duties of a wet nurse, faithfully and affectionately discharged, are entitled to a much higher reward than they sometimes receive. To this, however, there are many honourable exceptions, and a reciprocal and indescribable affection commences between the nurse and her foster charge, approaching to that of consanguinity, which is only terminated by death.

We cannot therefore omit reminding some parents of their duty in this respect, for we entirely coincide with Dr Ryan, to whom we are under many obligations for suggestions on this and other subjects, 'That the nurse who fulfils her duty to her foster child, ought not to be looked upon as a mere menial; the parents ought to show her gratitude and attention, as the protector of their child. Parents in general forget this kindness, but when it is shown it creates an affection in the mind of the most illiterate nurse, which will never be effaced, and of this we have, as already stated, abundant evidence.'

NURSERY. Among those classes of society who can afford to provide what has been very properly denominated a nursery, a few hints may be necessary. Few indeed, among even the higher classes of society, pay sufficient attention to the selection of the apartment, or we should rather say apartments, for this purpose, as any room in the house that can be most easily spared, and the greatest distance from those most frequently used by the family, is fixed on for a nursery; the health and comfort of its occupants being apparently at best a secondary consideration. Architects ought to bestow more attention to the situation, form, and size, of this necessary part of every family mansion, than they have hitherto done, although their employers are such persons as are not themselves likely to require such a suit of apartments, yet the want of them may prove a serious inconvenience to the future occupants of the building.

A nursery should never be on a ground floor, or in a shaded situation, or in any circumstances which expose it to dampness, or hinders the occasional approach of the light of the sun. It should be spacious, with dry walls, high ceiling, and tight windows, and the latter, except in the case we shall afterwards allude to, be always so constructed that the upper sash can be lowered or shut when it is desirable to admit or exclude air. It should have a chimney if possible, but if not, suitable holes in the ceiling or otherwise, for the purposes of ventilation, Window shutters are necessary, so that the room, when required, may be darkened, and green curtains. Some say that the windows should have cross bars before them, but if they do not descend within three feet of the floor, and especially if the lower half of the window is fixed in the sash, and the upper only hung on pullies, such an arrangement is not necessary, and obstruct the view, and are withal unseemly objects to infants. Indeed we consider it far preferable to any of the ordinary plans to have windows, at any rate one window, in the form of a folding door, with glass to within two feet of the floor, and a viranda, or covered projecting walk, of from four to six feet wide, properly guarded by a light but sufficiently strong railing, and this would furnish the nurse, infant, and children with occasional air and exercise. If, however, children of three or more years were inhabitants of the nursery, the outside railing would require to be made higher, as they might climb up and fall over, unless carefully watched. This, however, is an objection easily overcome, where there is no pecuniary or other obstacle in the way. The outside railing would be an excellent hold-by to a child beginning to

walk, and would greatly assist and facilitate its motions.

It is highly desirable that every nursery should consist of two rooms, opening into each other, or, what is still better, of one large room, with a sliding or swinging partition in the middle. The use of this is, that the mother and child may retire to the one, while the other is being swept or ventilated, and they would thus avoid damp, air currents, and dust. Such an arrangement would also give the occupants a room fresh, clean, and sweet, in the morning, which is a very great advantage after having rendered the air of the other foul by sleeping in it. In winter, and while there is an infant in the nursery just beginning to walk, it has been recommended to cover the floor with a carpet, which it is said secures the child from injury if it falls. We have seldom, however, seen serious or lasting injury inflicted by simple falls on the hard floor, and there are so many objections to carpeting a nursery, since it favours an accumulation of dust, bad air, damp, grease, and other impurities, that we consider it best to omit it. It is but fair, however, to state, that we knew an instance of a fine boy, between five and six years of age, who had one of his thigh bones fractured by a fall on a plain boarded floor, occasioned by the peeling of a potato. The skin of an orange, apple, or other such substance might have occasioned a similar accident, but it is scarcely possible such an accident could happen to a very young child, or even one of eighteen months. We have, however, thought it right to record this fact, to put parents and nurses on their guard against suffering any such nuisances on the floors of any apartments frequented by children. If, however, carpets are admitted, it should only be in winter, and even then they should be beaten and aired once, at least, a week.

A bed for the mother or nurse, a crib or cradle, a table, and a few chairs for the child should constitute the furniture. All feather or down beds should for ever be excluded the nursery, and only oat chaff, hair, or fine shavings, or dried moss or fog, (as it is called in some parts of Scotland,) nay, our national bard Burns calls it 'the velvet fog,' are all preferable to feathers. (See *Bed.*) Every nursery should be free from holes and crevices, and loose, broken or shattered windows, otherwise the inmates will be exposed to currents of air, and the sometimes terrible and always injurious consequences. The room may, in this way, be kept at a lower medium temperature, a point of very great importance.

Domestic animals, such as cats and dogs, should be excluded the nursery, for though the apprehension of cats sucking the child's breath is wholly groundless, yet they may be provoked by the rude attacks of a child to inflict upon it a lasting injury. Besides these animals frequently swarm with fleas or other vermin; and at any rate are nuisances in a nursery. We have not, however, the same objection to singing birds, as they tend to divert the children and call the organ of hearing unto active exercise. Again, if there are in the nursery objects which from the vivacity or brilliancy of their colours attract the attention of the child, they should never be presented to them sideways or immediately over their heads. The reason for this caution is, that children seek and pursue almost instinctively bright objects, and are thus liable to contract a habit of moving their eyes in an oblique direction, which may terminate in squinting. From what we have stated in the article *Cold*, respecting the injurious effects of that agent on infants, especially during the first month of their existence, it cannot be supposed that we are friendly to the system of hardening an infant by too early an application of a reduced temperature. There is one general principle, however, on this subject, which is alike applicable to all persons and circumstances. It is to keep a little too cool rather than in the slightest degree too warm. In other words, the lowest temperature which is compatible with comfort, is in all cases best adapted to health; and a slight degree of coldness, provided it does not amount to a chill, and is not long continued, is more safe than the smallest unnecessary degree of warmth. But in the application of this rule to those over whom we have control, is not without its difficulties. Our own sensations are so variable, independent of external and obvious causes, that we cannot at all times judge for others, especially for infants, and the absolute and real state of temperature in a room can only be ascertained with the aid of a thermometer, and no nursery should ever be without one. It should be placed, however, in such a situation as to indicate the real temperature of the atmosphere, and not where it will give a false result. An infant at birth has not the power of generating heat internally to the extent which it possesses afterward; the lungs having as yet but a feeble, inefficient action. The purification of the blood through their agency is not only incomplete, but the heat evolved is yet inconsiderable, and in the absence of internal heat, there is an increased demand externally. If, for example, 60°, or from that to 63°, be deemed suitable for most other persons, the new born infant will require a heat of 68° or even 71°. Much, however, may be done to preserve an infant in a proper temperature by means of its clothing; but our present purpose is to treat of the temperature of the nursery.

There are several plans for heating and even maintaining a uniform degree of heat in nurseries and other apartments, and even public

buildings, which will be found shortly detailed in the article headed *Ventilation* to which we refer; but in this place we may be allowed to observe, that some other modes, such as heated air, &c., have been considered preferable to an open fire or grate; but as a visible source of heat is a pleasant object to the inhabitants of these kingdoms, and 'a blazing fire and clean hearth-stone,' hold a high place in the scale of domestic comforts, especially in the winter season, we can scarcely bring ourselves to deny a nurse this enjoyment on a small scale, during the colder months, but the grate should be placed far back in the chimney, and there should be a high fender, so as to prevent accidents either from the infant's or nurse's clothes taking fire. Still, however, we think that the direct rays of the heat and the glare of light from open stoves and fire places, particularly for infants, form a very serious objection to their use in nurseries. Indeed one of the strongest objections to open stoves and fire places in the nursery, is the increased exposure to accidents, which must happen more frequently from the increasing use of cotton as an article of dress. We hope the plan lately proposed to render cotton or linen articles less liable to catch fire, or if they do, to cause them to burn more slowly, will prove successful, and be placed within the reach of all. Dr Dewees is fully persuaded that the excessive heat of nurseries has occasioned a very great mortality among very young children. 'In the first place,' he says, 'it over-stimulates them, and in the second it renders them so susceptible of cold, that any draught of cold air endangers their lives.' (See *Cold.*) They are in constant perspiration, which is frequently checked by an exposure to even an atmosphere of moderate temperature. If this is to repeat what has already been stated, the importance of the subject seems to be a sufficient apology. If there is one apartment in the house more than another in which the air ought to be pure and temperate, that room is the nursery; and although we have given a pretty full account of the constitution of the atmosphere under the term *Air*, to which the reader is referred for the sake of those having the charge of infants, as well as for the benefit of these infants, we may here be allowed shortly to advert to this subject. The air which we breathe is composed of two different airs or gases, oxygen and nitrogen, and another usually found with these two in smaller quantity, viz., carbonic acid gas; but whether this is a necessary constituent of the atmosphere, even in very small quantity, chemists are not agreed. One thing, however, is certain, that if any portion of it is healthful, it must be very little, not more certainly than one-fiftieth, or even one-hundredth of the whole mass. The oxygen it contains sustains life and combustion, for if not present, neither fires nor candles would burn, and neither man or any other animal could breathe a single moment. Breathing consumes this oxygen of the air very rapidly, and hence we observe candles or lamps burn very dimly in crowded places of public worship or amusement, and the audience, even with the stimulus of the most brilliant oratory, become drowsy, and many fall asleep in this corrupted air. When, however, the oxygen is present in a certain proportion, combustion and respiration go on well, but when its natural proportion is diminished, both the one function and the other are impeded in the same degree. And not only this, but just in proportion as oxygen is diminished by these two processes, or either of them, carbonic acid is formed, which is not only bad for combustion, but much worse for health. If any considerable quantity is inhaled, it appears to be an absolute poison to the human system, and a very large quantity will cause immediate death. It is freely evolved during the combustion or burning of charcoal; and the warming of beds, especially nursery beds, with pans filled with burning charcoal being passed up and down the bed clothes, is a practice that cannot be too severely reprobated, and the use of charcoal fires, on the ground of its producing no smoke in nurseries, is still more dangerous; but is occasionally employed, notwithstanding the repeated warnings given in our daily papers. It is this gas accumulated in large quantities, that destroys so many people in close rooms, where there is no chimney or any other place for the bad air to escape. But it not only kills people outright, it partly kills, that is, it poisons more or less hundreds of others, and this we have many examples in the cases of those who use charcoal fires in the melting of metals, and other arts; and also of laundresses, who employ it in heating their dressing irons, and drying their fine linens, &c., because no smoke or dust is produced. There are many reasons for urging the necessity of frequent and complete ventilation of nurseries; for in a nursery there is the mother, another wet nurse, an attendant or servant, and it may be one or two children, to render the air impure by breathing; and in addition, the lamp or candle to contribute to the same result, besides several other causes not yet named. One of these is nearly related to the former; we mean the fact that our skins by perspiration, and by other means, are a source of much impurity to the air; a fact more fully illustrated in several articles in this volume. It is only necessary to state here, that it is not the matter of perspiration alone, which issuing from the skin, renders the air impure, for there are other exhalations more or less constantly going off from every living body, especially from the lungs every time we breathe, and carbonic acid gas is even formed all over the surface of the skin, as well as by means of the lungs. No

better proof need be required that carbonic acid is formed on the surface of the body, than the fact, that after the body has been closely covered all night, if a candle is introduced under the bed clothes into this confined air, it will be quickly extinguished, because there is too little oxygen, and too much carbonic acid gas. Mothers and nurses may learn from this the evil, nay, the danger, of covering the heads of infants when they lie down, a very common practice, and which has in not a few instances proved fatal. It is only last year, (1837) that an infant was so closely covered up in a bed, so as not to be observed, and a member of the family not aware it was there, folded up the bed, which was in the form of a chest of drawers, and the poor infant was suffocated before the discovery was made. The air, when pure, contains a little more than twenty parts of oxygen, and a little less than eighty of nitrogen. Breathing this air, as we have already stated, not only in this, but in other articles, consumes the oxygen which is so necessary to life and health, and leaves in its place an increase of nitrogen and carbonic acid gas, which are not necessary to health, and the latter of which is even positively injurious. But when the oxygen, instead of forming twenty or more parts in a hundred of the atmosphere of the nursery, is reduced to fifteen or eighteen parts only, and the carbonic acid gas is increased from one or two parts in a hundred, to five, six, eight, or ten, and when to this is added the other noxious exhalations from the body, and from the lamp or candle and fire place, if charcoal is used, feather beds, stagnant fluids in the room, &c., &c., is it any wonder that children in the end become sickly? What else could be expected but that the seeds of disease thus early sown, should in due time spring up and produce their appropriate fruits? It is sometimes said that the fire in a room purifies it, and it undoubtedly does so, if fresh air be often admitted, but not otherwise. While upon this subject, we cannot help alluding to the very pernicious practice of permitting plants to remain in a nursery during the night, as nitrogen is evolved in great quantities, which, however, is not the case during the day, and asphyxia and death have often occurred from this circumstance. We have classed feather beds among the common causes of impurity, and our reasons for so doing will be found under the article *Bed*; and we agree with Drs. Alcott and Dewees, the latter of whom condemns them most decidedly, and gives substantial reasons for 'driving them from the nursery.' In alluding to the structure of the apartment used for a nursery, we adverted to the importance of having a large room with sliding doors between, in order that the occupants may go into one of them, while the other is being cleaned and ventilated. But whatever may be the structure of the room, or the circumstances of the occupants, every nursery ought to be most thoroughly ventilated once a day at least, except the weather be extremely moist or rainy; and when the weather is fine, fresh air can be constantly admitted at the top of a window or other suitable opening. If there is but one apartment, and fear is entertained of the dampness of the fresh air introduced, or of currents; and if the mother or nurse and infant cannot retire to another convenient apartment, there is a last resort, which is for them to get into bed, and cover themselves a short time with the clothing. For though we have prohibited the covering of the face with the bed clothes for any considerable length of time together, yet to do so for ten minutes, is an evil of far less magnitude than to suffer an apartment to remain long without being ventilated.

When a lamp is kept burning in a nursery during the night, it should always be placed within the chimney, that its smoke, or bad airs, or gases which are formed, may escape. A little floating lamp with pure vegetable oil, such as almond, olive, poppy seed, or even rapeseed oil is preferable to any animal fat; but it is better to avoid burning lamps during the night, as a light can always be instantaneously produced by a lucifer match and white wad taper, (not a green or red one), lighted without delay. The tapers sold by grocers, tallow chandlers, &c., are coloured green by verdigris, and red by red lead, although a beautiful red colour can be imparted by immersing in the melted wax and fat a little alkanet root, from which no injury can possibly result. Washing, but more especially dressing or ironing and cooking, should be strictly interdicted, as these operations load the air with noxious effluvia or vapour, or with particles of dust, none of which ought ever to enter the delicate lungs of an infant.

Other means of purifying the air, such as camphor, vinegar, and sweet scented substances, are only delusive, as the admission of fresh air should be preferred. We have no objections, however, that the floor be occasionally washed with a solution of chloride of lime, if any epidemic is prevailing in the district, and a good clear fire of wood put on to dry it in the absence of the nurse and child. Indeed we consider the cleaning the floor in winter, where a carpet is not used, by rubbing it with warm bath bricks preferable to washing, which always produces a cold damp atmosphere highly injurious to delicate children. Many of our readers who have it not in their power to procure the conveniences we have described in the preceding pages, must content themselves with adopting such parts of these arrangements as are within their reach, and profiting by the practical hints we have tendered. It is indeed consoling to the industrious classes of society,

that their children, by attention to cleanliness, the contented mind or temperate living of the mother or nurse, are reared and thrive not only as well, but often better, than the children of the higher classes, who enjoy all the conveniences the most refined taste can devise and suggest; but with all these, they are yet more frequently deprived of parental care than even those of every-day labourers, and left to the governance of servile and unprincipled hirelings. Although, however, this may in many instances be too true, yet we do not advise the retention of savage life and manners in civilized society, or the habits of (now only happily a few) the poorer classes of our Highlanders, or the vastly more numerous class of the poor Irish, who rear their children in rags and filth, because some of the stoutest and most robust children are brought up in such circumstances. To pursue such a practice would be retrograding with a witness, although we have heard the practice defended, and examples of its success triumphantly quoted. A happy medium is certainly to be attained between excessive effeminacy and refinement on the one hand, and that carelessness, filth, and nakedness, which have been eulogised as the best mode of rearing a race of giants and Samsons. Were the truth, however, known, this boasted panacea for the physical regeneration of civilized man, fails in more than six cases out of every ten; and of these six one half die before they reach their sixth month, and the other half languish the victims of scrofula, rickets, dwining consumption, and not unfrequently unseemly deformity, or incurable lameness; and not a few sink into a state of imbecility, or become half idiots; and were we to include the children of the dissipated in our cities and great towns, the picture would yet assume a more appalling aspect, and could not be contemplated by the feeling and philanthropic mind but with the most painful sensations of sorrow and regret. See other articles connected with the physical education of children.

NUX VOMICA, RATSBANE, or the *Strychnos Nux-Vomica*. This is the fruit of a species of *strychnos* growing and imported from the East Indies. The drupe or fruit is about the size of an orange, covered with a smooth crustaceous yellow bark, and filled with a fleshy pulp, in which are imbedded several flatted seeds of about the size and shape of a copper farthing; and it is those seeds that are sold in the shops as *nux-vomica*. They are inodorous, and have a bitter acrid taste, and are well known as a virulent poison, and employed to destroy rats, foxes, and other vermin.

The powder is considered a medicine of considerable efficacy, and acts as a powerful tonic and stimulant, and is given in doses of from three to fifteen grains, gradually increasing the dose, in cases of gout, rheumatism, indigestion, and especially in cases of paralysis of the lower extremities. In large doses, however, it produces tetanic and convulsive symptoms, and in still larger doses may prove fatal. Of late it has been found to yield a peculiar alkali, denominated *strychnia*, which contains in a very concentrated way all its good and bad qualities. It is powerfully stimulant, and administered in palsy in doses of from one-twelfth part of a grain made into a pill with crumb of bread. It is a most virulent poison, and however useful in the hands of an experienced practitioner, should never occupy a place in the domestic medicine chest. Those, however, who labour under palsy or muscular debility, may consult their physician as to the propriety of using it, as we have found it of very considerable benefit in these cases, especially where debility of the digestive organs existed at the same time as paralysis of the limbs. When nux-vomica, or its alkali strychnia, are taken in too large doses, especially the latter, the symptoms are inebriety, vertigo, or dizziness, as if every thing was wheeling round; lock-jaw, rigidity of the limbs and arms, starting of the tendons, difficulty of breathing, asphyxia, and death.

Treatment. Where strychnia has been taken even in doses of a few grains, and even a very short time lost, there is little or no hope of any treatment saving the patient. An emetic, however, of sulphate of zinc, (white vitriol) and then diluting the stomach with strong lemonade or vinegar, sugar and water, which may succeed when only a moderate quantity of the powder of the nut has been taken.

A suspicion, and in some cases there is reason to think too well founded, has existed, that this intoxicating and deleterious drug has been employed in brewing porter and ale, and therefore its introduction into breweries is prohibited under heavy penalties, and a duty of two shillings and sixpence per pound on its importation. The effects of this baneful drug upon different animals, and even upon those of the same species, appear to be rather uncertain, and not always in proportion to the quantity of the poison given. With some animals it produces its effects almost instantaneously; with others not till after several hours. It proves fatal to dogs and foxes in a very short time, and poisons hares, rabbits, cats, and even some birds, as crows and ducks, and a horse has died in four hours after taking a dram of the powder of the nut or seed in a half roasted state. The quantity necessary to kill a dog or fox, need not be more than a scruple; a rabbit has been killed by five, and a cat by four grains, and of four persons who perished by this deleterious drug, one was a girl ten years of age, to whom fifteen grains were exhibited at twice for the cure of ague. Others, however, have taken it in larger doses without any bad effect; but we hope these

facts will prevent any of our readers who may have seen flattering reports of the effects of the nux-vomica or the strychnia in palsy, &c., and especially our female readers, for it has been highly recommended in fluor albus, from using these medicines, or rather poisons, without the best advice that can be procured. We find this hint the more necessary, as the Lancet, Medical Gazette, and other medical periodicals, are taken in many reading rooms, and delicate individuals have been tempted to try powerful remedies without professional advice, which have produced irremediable effects.

NUTMEGS are principally procured from the Molucca islands, and their appearance and taste are so well known that they require no description here. The nutmeg is more used as a spice than an article of medicine; but like almost all spices, they possess stimulant and carminative qualities. See *Mace.*

NUTS. There are various kinds of nuts used as articles of diet. They contain a large quantity of oily matter, but they are difficult of digestion, and should be carefully avoided by all who have the slightest tendency to dyspepsia. They are also very unwholesome for children, with whom, from their agreeable taste, they form a favourite eatable.

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OAK BARK. The bark of the oak contains a powerful astringent principle, on which account it is used in the arts in the process of tanning leather; whilst in medicine it is used in the form of infusion or decoction in the composition of astringent gargles, washes, and injections. It is also sometimes prescribed along with other medicines to be given internally in cases of obstinate diarrhœa.

OATS are so well known as to require but little description here. Oatmeal forms an excellent article of food, and although in some individuals it occasionally gives rise to heart-burn and flatulence, still such cases are comparatively rare; and it is quite free from any tendency to produce cutaneous affections, a character which has been erroneously ascribed to it. Oatmeal diet, however, as well as most kinds of vegetable diet, is improper in cases of dyspepsia, as it may give rise to flatulence.

OBESITY. Corpulency, an excessive development of fat in the body. There are two varieties of obesity, viz. :—1st. General obesity, extending over the whole body, being an increased deposition of animal oil into the cellular tissue throughout the body generally. 2d. Abdominal or visceral obesity, in which the deposition of fat is confined to the abdominal viscera, and principally to the omentum or caul, giving rise to that rotundity of the abdomen which is vulgarly termed pot belly. When corpulency becomes so great as to cause inconvenience to the person, the best remedies are active exercise, saline purges, and temperance in drinking, and frugal diet.

OBSTRUCTION. A term generally used to express the non-appearance of the monthly discharge in females; and sometimes also to signify obstinate constipation of the bowels. See *Menstruation* and *Iliac Passion.*

ŒDEMA. A soft colourless swelling of any part of the body, which pits to the touch. This affection is often seen in what is called swelling of the feet from weakness. It is in fact dropsy of the cellular tissue, and when general over the body is then termed anasarca. Œdema is generally a symptom of some internal disease, the effusion of water into the cellular tissue being caused by some obstruction to the return of the venous blood to the heart. Thus we find it generally present in cases of diseased liver, diseases of the heart and blood vessels, and in the last stages of some cases of pulmonary consumption. Œdematous swelling of a limb is also sometimes caused by a badly applied bandage obstructing the circulation through it.

The treatment of œdema depends principally on the nature of the disease causing it; and therefore we must direct our efforts to subdue that. But where the swelling is painful, the best palliative is friction of the part with laudanum, keeping the limb in the horizontal posture; and in some cases we may evacuate the effused fluid by means of numerous punctures with the point of a lancet; but where there exists too much general debility, or in very old people, caution is required, for the wounds so made are apt to assume an unhealthy action, and other disagreeable results sometimes follow. See *Dropsy.*

ŒSOPHAGUS. See *Gullet.*

OIL. A bland fluid of a fatty nature, insoluble in water, inflammable, and forming a soap with alkalies. Oils are divided into the fixed and volatile. The latter, as their name

implies, volatilizing or becoming diffused through the surrounding atmosphere, when exposed to heat, whilst the fixed oils are not so dispersed. Thus, if a sheet of paper be smeared with a volatile oil, and then held before a fire, all traces of the oil disappear, and the paper becomes dry, whilst a fixed oil still leaves the mark. The oils principally used in medicine are, the aromatic essential oils, as those of peppermint, cloves, &c., castor oil, olive and almond oil, oil of turpentine, &c. Descriptions of these will be found under their respective designations.

OLIBANUM. A gum resin which, when burned, gives out a very fragrant odour. It is supposed to have been the frankincense of the ancients. It is now but little employed in medicine, although at one time it was much esteemed as a stimulant and expectorant.

OLIVE. The fruit of the olive tree, which is much used in the upper classes of society as an agreeable article of diet, or rather as a relish with wine after dinner. They are prepared from the green fruit, which, after being prepared with some alkaline solution, is afterwards preserved in a pickle of common salt and water. Olives contain a considerable quantity of oil, which renders them difficult of digestion, and unfit for the use of dyspeptics.

OLIVE OIL. The best olive oil is prepared from the fruit when fully ripe, by means of gentle pressure, when the oil flows in its purest form. When thus prepared, it is of fine pale yellow colour, without odour, and of sweet bland taste. It is used as an ingredient in the preparation of various articles of diet, and hence has received the name of eating oil; and it is sometimes used internally as a mild laxative, and in large doses for the expulsion of intestinal worms. It also is prescribed beat up with mucilage in the form of emulsion, in catarrh, sore throat, stranguary, &c., and may be given with great benefit to counteract the effects of certain acrid poisons. When applied externally, it acts as an emollient, and when heated serves as a useful medium for friction, in cases of swellings of the breasts in women, and indeed in swellings generally. For the purpose of friction or making liniments, however, the second or inferior olive oil is used. This is obtained after the pure oil has been expressed by means of increased pressure, and the employment of heat. It is less pure, and becomes rancid sooner than the first quality, and hence is improper for cooking or giving internally, but it answers well enough for compounding liniments.

OMENTUM OR CAUL. A fold of the peritoneum which hangs down from the stomach, and is then reflected on itself upwards and backwards to the colon. It is in this fold where depositions of fat frequently take place, and from its great extent in some persons, the omentum is often implicated in ruptures. See *Abdomen*.

ONION. This well known vegetable is used as an article of diet, as a seasoning to soups and other dishes; and when not used in too large quantities, is a very harmless one. With some persons, however, it entirely disagrees, and it always imparts an unpleasant odour to the breath of those who eat it. It is used in domestic medicine as a diuretic.

OPHTHALMIA. See *Eye, Inflammation of.*

OPIATE. Any medicine into which some preparation of opium enters.

OPIUM. This valuable medicine is the concrete juice which exudes from incisions made into the unripe capsules of the white poppy. Opium is obtained from various parts of the globe, but the principal varieties are, the Turkey and East Indian opium, the Egyptian or Theban, and the European opium. The two first mentioned varieties are those principally used in medicine, and are reckoned the finest. Of the European variety, some very good specimens have been produced, but owing to the changeable nature of the climate, and the expense of producing it, its cultivation has not been continued.

Opium belongs to the class of narcotic medicines, although its effects on the system may be varied according to the manner in which it is exhibited. The active principles of opium are: 1st. Morphia, an alkaloid which exists in its native combination with a peculiar acid termed meconic. 2nd. Narcotine, a salt procured by treating the watery solution of opium with ether.

The principal preparations of opium used in medicine are, the crude opium in form of pills from one grain to three grains or more, according to the circumstances of the particular case; or in combination with some other substance as a suppositary in irritation or other diseases of the bladder or womb. The tincture of opium or laudanum contains about one-twelfth part of its weight of opium, the dose is from twenty-five to fifty drops for an adult, and proportionally less for children. The wine of opium contains about one-sixteenth of its weight of opium, and is principally used in eye washes in cases of chronic inflammation of that organ, or is used by dropping two or three drops into the eye night and morning. When given internally, the dose is nearly the same as that of laudanum. The ammoniated tincture of opium, or Scotch paregoric, is about one-fifth of the strength of laudanum, but four times as strong as the camphorated tincture, or English paregoric; the dose of the Scotch being forty or sixty drops in water, whilst the English may be given in doses of two or even three tea spoonfuls.

Besides the preparations just mentioned, there

are two patent or quack preparations, which are held in high repute on account of being more powerful in their action, and being in a great measure free from the distressing effects which frequently follow the exhibition of laudanum. The preparations we allude to are the Lancaster black drop, and Battley's sedative solution. Although there is nothing certainly ascertained as to their exact composition, still, as far as we can depend on analytical researches, they both seem to owe their advantages to the vegetable acid contained in their composition, by which it seems probable that an acetate of morphia is formed, and the stimulating effects of the narcotic neutralized. The salts of morphia, or the active principles of opium, which are now used in medicine, are the acetate and muriate. These are generally prescribed in the form of solution, of which the dose is from twenty-five to fifty drops.

Effects of Opium. The effects of opium are those of a narcotic sedative. There have been many disputes amongst medical men as to its mode of action; some contending that it always acts as a stimulant; others again stating it to be a direct sedative. The fact is, as we have already observed, when speaking of narcotics generally, that its apparent effects vary according to the manner in which it is exhibited, for though in every case it acts first as an excitant, still if given in a larger dose, the sedative effects are so rapid, that the stimulating effects are scarcely perceptible, whilst, if given in small doses, its stimulating effects become very apparent, and it is often owing to very small doses being prescribed that we sometimes find patients rendered irritable, restless, and wandering, after its exhibition; and it is on account of its stimulating and intoxicating effect, that the Turks, Chinese, and other Eastern, and also, must we even add, European nations, indulge in its use as a substitute for wine or ardent spirits. Viewed in this last light, it is a fearful example of a blessing changed into a curse; of one of the most useful medicinal substances changed by human abuse into a drug the most demoralizing to the mind, and pernicious to the body.

Uses of Opium. There are few medicines of such extensive use in the treatment of disease as opium, for it is well observed by Dr Paris, that its medicinal powers are wonderfully extended and varied by its combination with other substances. Although the exhibition of opium will be found recommended when treating of the different diseases requiring its being made use of, still we may here briefly recapitulate the principal reasons for which it may be required. It is given very generally to procure sleep or rest in fever, ague, and various other diseases, when not contra-indicated by full pulse, headache, or constipation of the bowels. It is employed to relieve pain in cases of accidents, chronic pains, cramps, and burns; and this may be done in cases even of an inflammatory nature, after blood-letting has been had recourse to. It is used to check immoderate discharges, as in cases of dysentery, diarrhœa, and cholera, either alone or combined with other substances, and is prescribed as an antispasmodic in convulsions, asthma, and tetanus.

The principal disadvantages of opium are its constipating effects, its giving rise to violent headache and nausea, deranging the digestive functions, and in some individuals producing a state of excitement, being totally the opposite to the effect wished for. In the last case extract of henbane should be in future prescribed, but the dose of course should be larger. The temporary excitement may be moderated by spunging the head and temples with vinegar, and giving lemon juice and water or strong coffee internally. Too much caution cannot be used in prescribing opium for children; indeed this should never be done but by a regular practitioner; and for the same reasons, the syrup of poppies, as well as the numerous quack soothing medicines, of all which opium forms the base, should be carefully excluded from the nursery. In combination with other medicines, opium is used for a variety of purposes. Thus in the form of the Scotch and English paregorics, it is used in combination with ammonia and camphor respectively, as an antispasmodic in diseases of the chest and stomach, when there are no active inflammatory symptoms present; and here we would again beg our readers to recollect what has been already stated regarding the relative strength of these two paregorics. In combination with ipecacuanha or antimony, it acts as a diaphoretic or sudorific. The compound powder of opium and ipecacuanha is named Dover's powder, and has already been described under its proper designation. A liquid sweating draught may be formed by adding twenty drops of laudanum, or the solution of the muriate of morphia, and twenty-five of ipecacuanha or antimonial wine, to one ounce of peppermint or cinnamon water. Opium is also used externally in combination with the compound tincture of soap and camphor, as an anodyne liniment, to bruises and sprains, &c.

Poisonous Effects of Opium When an overdose of opium is taken, either by accident or design, there is first giddiness, flushed face, slow full pulse, and oppressed breathing, as in apoplectic seizures; but with this exception, that in cases of poisoning from opium, the pupil of the eye is generally contracted, instead of being dilated as in apoplexy, although the contrary sometimes takes place. In some instances, there are startings, convulsions, cold sweats, vomiting, and hiccup.

As soon as the nature of the accident is ascertained, the stomach should be immediately

emptied of its contents, either by means of the stomach pump, if there be any person at hand who can apply it; or failing that, by a powerful emetic of thirty grains of the sulphate of zinc, or eight of the sulphate of copper, dissolved in warm water, and this should be repeated in a quarter of an hour, if vomiting is not induced. And bleeding may be had recourse to at the same time if the pulse is full, and the face florid, to relieve the apoplectic symptoms; and mustard blisters should be applied over the pit of the stomach and nape of the neck. Vomiting will often take place after the bleeding, when the emetics have been previously inefficient, and therefore it should be performed immediately after administering, or whilst another person is administering, the first emetic. When free vomiting has taken place, large doses of carbonate of soda, or some other alkali, should be given in water, and drowsiness prevented, if possible, by keeping the patient moving up and down the room between two attendants. Applying fresh sinapisms, administering an injection containing turpentine, giving a strong infusion of coffee, never allowing the patient to sit down, and even pricking the body with needles, if other means fail. If, in spite of all the above measures, the symptoms of drowsiness increase, and the breathing becomes stertorous, the prognosis is unfavourable, as in all probability the result will be fatal.

The general duration of a fatal case is from six to twelve hours; most persons who survive twelve hours recover, but this cannot always be depended on; and therefore the attendants must never remit their cares for the patient for an hour or two longer, unless when directed by a medical man. With regard to what may be considered an overdose of opium, that, as may be readily understood, depends on particular cases, and whether the person has been accustomed to use opium previously, as those who use it habitually require gradually to increase the dose; and there are instances in which such persons have taken daily as much as nine fluid ounces of laudanum.

OPODELDOC. The camphorated tincture of soap, which is prepared by dissolving Castile soap and camphor, with a proportion of oil of rosemary in alcohol, (whiskey or rum answers equally well), and allowing it to stand for some days, then pouring off the clear fluid, sometimes a proportion of opium is added. This tincture is used as an external application in cases of sprains, bruises, chronic rheumatism, &c. See *Domestic Pharmacopeia.*

ORANGE, or *Citrus Aurantium.* This, like the others of the same genus, has a great number of varieties; but it is the common sweet orange that is known by the name of the *citrus aurantium.* The leaves of the plant, the flowers and fruit, are all used in medicine and domestic economy. The leaves have been used in the form of powder or infusion, in spasmodic diseases. They are feebly bitter, and contain a volatile oil. They are little regarded in this country, but are frequently used, especially in domestic medicine, on the Continent, and some of our colonies. The orange leaves likewise yield, on distillation with water, a very fragrant oil called the *essence de petit grain;* but the oil formerly sold under this name was procured from the unripe fruit, and was liable to decompose and lose its odour.

The London college has now introduced the orange flowers or blossoms into their pharmacopeia. They contain acetic acid, acetate of lime, thermal oil, yellow bitter extractive, and gum; and by distillation yield a very fragrant oil called in commerce the oil of *neroli,* but designated in the pharmacopeia the *oleum aurantium.* The oil or essence of the leaves, already noticed, being much cheaper, is frequently substituted for it. This oil, or its substitute, is used in medicine solely for its flavour, and covering the disagreeable odour of more active ingredients.

Orange flower water is prepared by introducing into a still ten pounds of the flowers, seven fluid ounces of proof spirit, and two gallons of water, and distilling off one gallon. A slow, clear fire, without smoke, is necessary for the proper performance of the operation. This water has long been a great favourite with the French faculty as a vehicle for a great variety of remedies, external and internal. Our own pharmacopeias used to contain many formulæ for the preparation of distilled waters, which have been expelled from the late editions. The introduction of orange flower water will form an agreeable, if not a useful variety; for such are the various tastes and humours of patients, that some of them would refuse Epsom salts, if dissolved in peppermint water; and others, if in cinnamon water. We therefore hail the introduction of the orange flower water into the London pharmacopeia, as a useful and convenient addition to our simple waters.

The orange is useful either for its rind or its acid juice. The rind may be preserved in the same way we directed for the preservation of the rind of lemons. It is ordered in many pharmacopeias, although the London college prefers the rind of the Seville or bitter orange, which, however, is seldom sold in the shops, or preserved in a dry state. It is a mild tonic and aromatic, used in the form of infusion or tincture, as directed in the formula for the compound infusion of orange peel, and the compound infusion of gentian, both of which will be found under the article *Lemon.* Large quantities, say the editors of the United States Dispensatory, are sometimes productive of mischief especially in children, in whom colic or even con-

vulsions are sometimes induced by it. They have known the case of a child in which death resulted from eating the rind of an orange. We are not disposed to call this statement in question, as children often eat orange peel, or rather swallow it, in large pieces, without mastication, and frequently in a state of semi-putrefaction or decomposition, and with the white pulpy inner covering attached, which is a most indigestible part of the covering either of the lemon or orange. We have brought away, by means of purgatives and enemas, large pieces of orange and lemon peel from children, after they had lain in the stomach or bowels for more than eight days indigested; and on these occasions, of which more than one or two have occurred, we found the outer part of the rind in most instances completely digested, and in others partially, while little or no change was effected on the inner part of the peel.

From the flavedo of the outer rind a very fragrant oil is obtained, in much the same way as from the lemon peel, and ought to be preferred to the other oils from the leaves and flowers we have already described. When used as an auxiliary to medicine, it is known as the essential oil of the sweet orange, and is chiefly in the hands of the perfumer. This oil may be obtained in considerable quantity to answer all practical purposes in medicine, by rasping the skins of ripe healthy oranges with refined sugar. The sugar will imbibe a considerable portion of the oil, and should be ground and kept in a close stoppered bottle, as directed for lemon peel oil. Orange imperial may be made nearly in the same way as lemonade, and is an equally agreeable and useful beverage. Three large fresh oranges are to have the outer rind well rasped with an ounce and half of sugar, divided into six pieces, above a bowl or basin. The oranges are then to be cut in small pieces, extracting the seeds, and put in the basin along with the sugar, and as much cream of tartar as can be lifted on a sixpence. On these are to be poured two pints of boiling water, and when cold, the infusion to be strained with gentle pressure through a fine linen cloth. This is one of the most refreshing drinks a patient in febrile and inflammatory diseases can possibly use, and is in every respects equal to the lemonade. Every thing, however, depends on the state of the fruit, as if the fruit is in the slightest degree tainted, or even in the first stage towards decomposition, the infusion will neither be agreeable or useful.

The unmixed juice of the sweet orange contains citric acid, and a small portion of malic acid, citrate of lime, mucilage, albumen, sugar, and water, and may be used in greater proportions for every purpose that lemon juice is employed.

The seeds are said by expression to yield a bland oil useful for many purposes, but we have never heard of it in practice. Orange berries, or orange peas, are the small green fruits of the orange tree, which, falling during the great heats of summer, are carefully collected and dried. They were formerly known by the name of *aurantia curassaventia* or *curassao* apples or oranges. They yield a grateful aromatic bitter, of a flavour very different from that of the peel of the ripe fruit, and without any acid; what little tartness they have being lost in drying. Their size does not exceed that of a cherry, and their colour is of a dark grayish or greenish brown. When smoothed or turned by a lathe, they are used to promote the discharge in issues, being preferred for their agreeable odour, and are called orange issue peas.

Infused in spirits, they afford a pleasant bitter, and great quantities of them are consumed in this way where orange plantations abound, while with some thrifty housewives they have been employed to give flavour to beer, and save one half of the hops otherwise required. The turnings of those employed for issue peas, are considered the best for this purpose They have been submitted to chemical analysis, but it would serve no practical purpose to enter into detail. See *Issues*.

ORANGE, Seville, or the *Citrus Vulgaris*. There are of the Seville or bitter orange several varieties. Risso mentions eleven. The fruit is globose, with a thin scabrous rind, and a bitter acrid pulp. The exterior rind is preferred by the London college to that of the sweet orange, and enters into the compositions we have already named when treating of the lemon and sweet orange. The college likewise order a confection, tincture, and syrup, all of which, when properly prepared, are useful medical auxiliaries for giving taste, flavour, and consistence to more active agents. The rind is more bitter than that of the sweet orange, and is therefore regarded as more powerfully tonic. Its flavour, too, is very pleasant, which is no ordinary recommendation even to a bitter. It is given in substance in doses of half a dram or dram. The doses or the infusion we have stated in another place. The confection is ordered to be prepared by separating with a grater one pound of fresh Seville orange peel. Pound the peel in a stone mortar with a wooden pestle. Then add three pounds of refined sugar, and pound again until the mass is formed. We beg the college pardon, but we really think and are sure, if the grating process is rightly conducted, no previous beating will be required till the sugar is added.

This will be found an excellent, although expensive vehicle for concealing small powders, and facilitating the swallowing of calomel, sulphate of quinine, Dover's powder, &c.

The syrup is directed to be made by infusing or macerating two ounces and a half of the fresh orange peel in one pint of boiling water for

twelve hours, in a vessel loosely covered; then pour off the liquor, and add to it three pounds of sugar. This is used for forming dry powders into pills, and communicating to them its flavour; and is likewise used to render stomachic and bitter mixtures more agreeable. It is an excellent composition in the hands of a fashionable apothecary employed among the higher classes, and especially among nervous and hypochondriac patients, for with half an ounce of this syrup, one ounce of distilled or plain water, and one or two grains of sulphate of quinine, he can form a pleasant and elegant draught, worth from eighteen pence to two shillings, three or more of which are to be taken in the course of the day; and if two drams of the water were omitted, and two of best old brandy substituted, the draught would be more agreeable, and not less efficacious. Our friends can procure the same ingredients at a less price, and we can assure them, that to delicate stomachs a more suitable medicine cannot be administered, especially in the sequel of fever, and other debilitating complaints. The quinine might be increased gradually to five grains in each draught.

The tincture of bitter orange peel is made by macerating for fourteen days three ounces and a half of the dried peel in two pints of proof spirits, and then strain. This formula is too an auxiliary to the compound infusion of the orange peel, or the infusion of gentian, as it will, in the proportion of two ounces to the pint of either of these infusions, not only render them less liable to spoil, but likewise render them more efficacious. We, however, must reiterate our objections to spirituous tinctures, except in particular cases, as they are apt to be converted into concealed drams, and create a taste for spirituous liquors. And here we would quote the very appropriate and striking remarks of the eloquent and lamented Dr Reid, late physician to the Finsbury Dispensary. 'The real prudes in regimen,' says Dr R., 'are those who strain at a gnat, and swallow a camel; who would have great scruple in drinking a glass of wine; but who would not hesitate every day of their lives to ingurgitate in a pharmaceutical shape draughts composed principally of the worst and most concentrated spirits. Tinctures are medicinal drams. The habitual use of them can only be regarded as a more specious and decorous mode of intemperance. In this may be said to consist the privileged debauchery of many a nervous valetudinarian. A female of decorum and delicacy may in this way ruin most effectually her health, without in the slightest degree impairing her reputation. She may allay the qualms of the stomach, without the danger of occasioning any more disagreeable qualms of conscience.' *Reid on Insanity.* There is another, and in Scotland a very popular, sweetmeat or confection, prepared of the bitter orange, viz., marmalade, one of the best dishes that can grace the tea-table, or occupy a corner of the lunch tray. A tea spoonful or two on the top of a slice of bread and butter, about lunch time, will act as effectually on the digestive organs as some of our far-puffed, if not far-famed, dinner pills. Indeed the marmalade is preferable even for medical uses to the confection of the college.

OSSIFICATION means literally the formation of bone; but in medical language it is most frequently used to denote the deposition of earthy matter in the softer textures of the body, where bone does not naturally exist; and is in such cases used to denote the diseased action, or the conversion of such parts into bone. Earthy or ossific deposit takes place in various textures of the body, but in none so frequently, or with such dangerous effects, as in the vascular system, as may be often noticed in cases of ossification of the valves of the heart, interfering with their function, and obstructing free circulation; or in cases of ossification of arteries, giving rise to aneurisms, mortification of the extremities, and other fatal diseases.

OVARIUM. The *ovaria* are two small white flattened oval bodies, placed one at each side of the womb, and enclosed in the posterior fold of the broad ligament. The ovarium is frequently the seat of disease, becoming hard and enlarged, sometimes the tumour is of enormous magnitude, consisting of a growth of fibrous character, with cells at some points containing a glairy fluid; in some instances such tumours have weighed nearly 1 cwt. Again, the ovaries may become the seat of dropsy, which may be distinguished from ascites or dropsy of the peritoneal sac, by the position of the fluid, and by its not being general over the abdomen. It is only in this last form of disease of the ovaries that relief can be afforded, and this is to be effected only by a skilful surgeon—the treatment even then being only palliative, and consisting in the operation of tapping the swelling, and drawing off the accumulated fluid, and this requires to be repeated from time to time as the particular case requires.

OVUM. Literally an egg, a term used in physiology to denote the contents of the impregnated uterus, viz. the membranes, the waters, and fœtus contained in them.

OXALIC ACID, OR ACID OF SUGAR. The most common name by which this substance is known, is derived from the scientific name of a well known plant *oxalis acetosilla*, or wood sorrel. This pretty three-leaved plant supposed by some to have been the ancient shamrock of the Irish, grows in damp woods and shady places, and often by the roadsides.

Scheele, a celebrated Prussian chemist, discovered this acid nearly seventy years ago. It

is not only yielded by the plant from which it takes its name, but is widely distributed over the vegetable kingdom, and likewise found in some animal substances, and is sometimes an inhabitant of the human bladder in the shape of mulberry calculus. It is to be found in the chick pea in considerable quantity, so as to affect the shoes of those who walk through a field of that plant, and likewise in rhubarb, on which account the leaf stalks are used in tarts; and in parsley, bistort, fennel, liquorice root, and in cinnamon, oak, elm, cascarilla, and other barks, and in almost all acid fruits, such as currants, cherries, citrons, raspberries, &c.

The oxalic acid of commerce is not, however, derived either from the wood sorrel or any other of these sources, but is manufactured by distilling nitric acid off animal and vegetable substances, principally off sugar, and has sometimes been obtained by distilling nitric acid off honey, gum Arabic, alcohol, and certain animal calculi; and from silk, hair, tendons, wool, crassamentum of the blood, the white of eggs, and from starch and gluten, and acid fruits; but it is most generally manufactured or produced from sugar.

Largely diluted in very small quantity, it may be taken as a refreshing drink, but it is a substance we do not advise the use of, as many more safe and agreeable substitutes may easily be found. It is an active poison, and has occasioned more accidental deaths, than perhaps any other. The frequency of accidents have arisen from several causes. It bears no alarming name: a compound of it consisting of supertartrate of potash and hyperoxalate of potash, is popularly known by the name of the essential salt of lemons. It is much used for taking out ink stains and iron marks from linen. Oxalic acid, without any mixture of the supertartrate of potash or cream of tartar, is employed for cleaning straw hats, boot tops, harness of some kinds, and extensively used by dyers and calico printers. Those who are in the daily habit of using it, and buy it in small quantities, of one or two ounces for cleaning straw bonnets, are apt, from their familiarity with the article, while they know it to be a virulent poison, and frequently too careless about the packages, and in this way, individuals ignorant of its treacherous resemblance to Epsom salts, swallow the dose, and in pain and anguish post on to that home from which no traveller ever returns. The oxalic acid resembles the sulphate of magnesia or Epsom salts in colour; in solubility requiring, however, more water to dissolve it, and in the form of its crystals. No one, however, could mistake the one for the other, who tasted the solutions of the salts and of the acid, as every one knows something of an acid or vinegar taste, and likewise of a saline or saltish taste; and the acid dissolved in water always imparts an acid taste. This simple trial would have saved many lives; for, by tasting a single drop of the solution, the true character of the ingredients might have been discovered. As lime water is not a very scarce or expensive article, it will speedily detect the presence of oxalic acid; as by mixing it with the solution of the acid, it will throw down a copious precipitate to the bottom of the glass. Every one knows the sour or acid taste of the sorrels or *surricks*, as they are called in some parts of Scotland. The common wood sorrel, and which, as above stated, has given its name to this poisonous acid, is in common use on the continent, particularly in France, as a condiment with eggs, veal, and other dishes; the plant having an agreeable acid flavour, which it owes entirely to the hyperoxalate of potash it contains, and when eaten in moderation, in this way can do no harm. The same remarks apply to the common sorrel or *surricks*, which are often mixed up with cresses, lettuces, and other sallads, and in this form are beneficial, especially for those who are apt to indulge too freely in salt animal food; especially those who have concluded a long voyage, and who are not affected with any dysenteric symptoms or pain in the bowels.

The symptoms of poisoning by this acid are an acrid burning taste, and an acute pain in the throat, stomach, and bowels; in fine, the very same symptoms produced by an over-dose of any of the other acids. See *Muriatic* and *Nitric Acids*.

The treatment too is the same; to dilute largely with milk and calcined magnesia, or chalk, or lime water, or the carbonate of soda, or potash in water. Demulcent drinks, such as linseed tea, artificial asses' milk, and barley water, may be afterwards administered, and the bowels freely opened by the compound castor oil enema, without either the croton or turpentine oils. The inflammation may be subdued by those means recommended in the case of poisoning by arsenic, &c. See *Arsenic*, and the articles already referred to.

OXYGEN GAS. So named, as it was formerly supposed to be the only body capable of generating acids. The distinguishing feature of oxygen is its power of supporting combustion and respiration. Many inflammable bodies when placed in it instantly ignite, others require an elevation of temperature, but all burn when placed in it with greater splendour. If, for example, we take a candle just extinguished, but whose wick is still red, and place it in a jar containing oxygen, it is immediately rekindled, and burns with a bright white flame.

Oxygen is likewise necessary for the support of animal life, as animals, when deprived of it, quickly die. Nevertheless, pure oxygen does not seem well adapted for respiration, as animals die when placed in it, even when enough

is left to support others for some time, and this probably depends on its powerfully stimulating effects; hence, we find, that in the composition of atmospheric air, the oxygen is much diluted with nitrogen; the proportion according to Dr Thomson's experiments,

being 20 of oxygen,
to 80 of nitrogen in 100 parts.

Oxygen unites with most metals, forming earthy-looking substances named oxides, and this oxidization of metals is requisite before these metals can unite with acids to form metallic salts.

OXYMEL. An old-fashioned pharmaceutical preparation, made by boiling honey and fine vinegar together, to the consistence of syrup. It was used as an expectorant in coughs, and asthma, and other pectoral complaints; the dose is from one to two tea spoonfuls, either alone or with tepid water.

Oxymel of squills is prepared in the same manner as simple oxymel, with the exception of using squill vinegar in lieu of common vinegar. It is more efficacious as an expectorant; but is sometimes apt to cause nausea; it must therefore be given in smaller doses, say half a teaspoonful at a time diluted with tepid water.

OYSTER, or *Ostrea Edulis*. This is by many considered the prince of shell fish; and when the immense sums of money derived from oyster beds by the proprietors, and the still greater sums expended in the purchase, our common edible oyster is perhaps well entitled to the designation. The oyster is not considered fit for table till it is eighteen months old, nor in Great Britain and Ireland, during the months of May, June, July, and August.

The quality of oysters is greatly influenced by the grounds or bottoms on which they are reared and fed; for oysters reared on a bottom in which certain metals exist, such as copper, are justly considered poisonous, and highly injurious to those who eat them.

A system is now adopted by the proprietors of oyster beds, of bringing young oysters from the place of their birth, if we may so term it, and laying them on other beds, where they arrive sooner at a state of perfection, than if they had been allowed to remain on their native lair; and oysters are taken from the coasts of Hampshire, Dorset, Scotland, and other maritime districts, and laid down on the creeks near the mouths of rivers, on the coast of Essex and other places. This plan, however, is said to have failed in some parts of France where it had been tried. There is no doubt, however, but the plan would succeed, and does succeed, when judiciously employed; and this shell fish might be rendered by these means, and the repeal of some very oppressive laws now in existence for the protection of oyster beds, more abundant, and at a far cheaper rate than it can now be obtained in London, Glasgow, and other cities and towns in Great Britain, and especially in many districts of the coast of Ireland, where it is well known oysters exist, if the natives had the means or suitable encouragement to dredge for them.

Oysters when in season, and not too long out of the water, are, without doubt, a highly nutritious article of diet. The less the cook interferes with them the better, as a person in good health, and who takes a moderate share of exercise, cannot do better than eat them as newly opened off the shell, with a small sprinkling of black pepper, with about a thirtieth part of Cayenne pepper, intimately and uniformly mixed with it; and if he chooses, a little vinegar or any other safe liquid condiment. Where Cayenne pepper is not used, a little Chili vinegar, diluted with two or three parts of common vinegar, according to the strength of the Chili vinegar, is an excellent addition to people of cold phlegmatic habits, who use oysters in a raw state, Oysters should, however, never be taken as a full meal, especially if without a due portion of bread and butter; and it is a bad practice to bolt them, or in other words, swallow them without mastication. Oysters, when too long kept, or having a bluish colour, even if they look full and watery, are not to be eaten, as they produce disorder of the stomach and bowels.

The cook has, however, contrived a variety of methods to torture, and in some cases to deteriorate the quality of the oyster even as an article of diet. The most popular of these are, frying them for garnish to other dishes, pickling them in various ways, roasting, stewing, and scalloping them.

The simplest mode of cooking them is to open them, carefully preserving their liquor, and when the quantity required is opened, strain off the clear liquor, or pass it through a thin cloth or search, and if any impurities adhere to the oysters, wash them in salt and water. Pour the clear liquor of the oysters into a saucepan along with a blade of mace, a small bit of cinnamon, and a few whole peppercorns, and after these ingredients have boiled together for ten minutes, put in the oysters into the boiling liquor, and boil them till they begin to shrivel up. The quantity of the spices will, of course, be regulated by that of the oysters and the taste of the cook. Some use along with oysters thus prepared, a sauce, which only renders the dish more indigestible. See *Fish Poisons*.

OZŒNA. An ulcer of the internal parts of the nose, attended with sanious discharge and horridly fœtid smell; but as it is not a disease which can be treated by the domestic practitioner, we forbear entering upon its further description.

PAIN. All morbid alterations of structure, and even diseases, where such alterations cannot be discerned, are attended by certain uneasy or disagreeable feelings, which constitute the sensation of pain. Pain varies in its nature and intensity according to the organization of the part affected, and the violence of its exciting cause. It is a constant attendant on inflammatory action, and is reckoned one of its characteristic marks, although we frequently find violent pain where there is no inflammatory action, as in the case of violent cramps or spasms. Pain has been distinguished into three varieties, viz., 1. The acute or lancenating, which is the kind usually felt in active inflammation, spasmodic attacks, cancerous diseases, &c. 2d. The throbbing or burning pulsating pain, felt during the formation of matter, and in boils, and in some kinds of rheumatism. 3d. The dull sensation felt in cases of chronic disease, often merely amounting to uneasiness. However disagreeable the sense of pain may be, still it is one of those numerous provisions in the animal economy which point out the hand of an all-wise and beneficent Creator; and the true value of which can only be appreciated when we notice the effects which occur when such a sense is lost. Take, for example, a limb completely deprived of sensation from previous disease in some of its nerves, and we find that it may be exposed to injury from various external causes, without the person being aware that it is even touched. So a person might continue to use a diseased part deprived of sensation, until the disease was greatly aggravated; but the occurrence of pain both draws the attention to the disease, and obliges him to give the part that rest which is essential to its cure. As pain is a symptom, and not a disease, it must be treated according to the exciting cause in every particular instance; as, for example, by the abstraction of blood in inflammation, the removal of foreign bodies, and the exhibition of anodynes or opiates, as pointed out by the symptoms of the particular case.

PALATE. The arch or roof of the mouth, bounded in front by the teeth, and extending back to the pharynx. The palate is divided into two portions, viz., the hard and soft palate. The hard palate is composed of the palatine plates of the upper jaw bones, and the two palate bones covered by the mucous membrane of the mouth. The soft or movable part of the palate lies posterior to the hard palate, and is composed of a dense fibrous tissue attached to that covering the hard palate, and at the sides to the anterior pillars of the fauces, posteriorly it ends in a thin free margin, from the centre of which depends a tongue-like process named the *uvula*, or in common language, the 'pap of the throat;' beneath the mucous membrane of the soft palate, there are numerous small glands, which furnish a mucous fluid. During the act of swallowing, the soft palate and uvula are raised by means of muscles, so as to prevent fluids and other substances passing back by the nostrils. The palate in some children is imperfectly formed, being divided by a longitudinal fissure; and this is generally accompanied by harelip, forming what is termed 'cleft or split palate.' Should the child live, the deformity may be remedied by means of an operation; but this should never be attempted till the person is old enough to feel the necessity for the remedy, and have sufficient firmness to bear the operation patiently, for it is one which requires as much resolution and steadiness on the part of the patient, as dexterity in the operator.

PALLIATIVES. Medicines given not with the view to cure disease, but merely to relieve or palliate urgent symptoms.

PALM OIL. This oil is obtained from the *cocus butyracea*, which the pharmacopeias say is a native of South America, but the greater part of the palm oil used in Britain is imported from the coast of Africa. The African palm furnishes at the base or origin of its leaves clusters of a yellow succulent fruit. Each of these bears some resemblance to a grape-shot. The bunches are of different sizes, and the fruit composing them of different shapes, as might be expected from their reciprocal pressure, although naturally round when not exposed to it. The pulp of this fruit is soft, and of a bright yellow colour; it is from this that the oil is obtained. Within it lies inclosed a hard and thick shelled stone, of a dark colour, within which is contained a firm white kernel of a pleasant oily flavour. This kernel also affords an oil which is not yellow, but white, and not fluid, but concrete, even in Africa. The yellow palm oil, however, is quite fluid in Africa, and it is not until it has been exposed to the cold of our temperate regions that it becomes solid, while the oil of the kernel is always concrete, or nearly so.

Both the white and yellow oil are obtained by expression. The latter is procured in immense quantities in Africa, where it is partly consumed by the Negroes along with their rice and pepper, or fried fish, and partly exported to Europe. It continues to possess a pleasant, fragrant, vio-

let odour for a long time after its extraction, and holds the same importance among the necessaries of an African, that olive oil does among those of an Italian or Spaniard. The white oil is only used as an ointment for the skin, which it keeps nice and soft, while it at the same time prevents too great an excretion of perspiration.

Palm oil is used externally in medicine, in sprains and bruises, &c., as an emollient; and when genuine is a cheap and useful application, and but for prejudice might be used in diet, being equally nourishing as olive oil. It is, however, more employed in domestic medicine than by the faculty. Its chief consumption is in the manufacture of soap, for which it is admirably calculated. As, however, it does not become so easily rancid as hog's lard, it might be substituted for that article in making culamine or Turner's cerate, or any other ointment that is applied to a tender surface. A very important ointment, too, that is speedily rendered useless by keeping, viz., the ointment of the nitrate of silver, or the black eye ointment, might be made of a mixture of palm oil, spermaceti, and wax, and would keep longer than if lard or even olive oil were employed. When genuine and fresh, palm oil has a sweetish taste, the odour of violets, a golden yellow colour, and the consistence of butter. When rancid, it has a dirty white appearance, and is often imitated by a mixture of lard with a small portion of tumeric and florentine orris powders.

PALPITATION. A violent and irregular action of the heart, accompanied generally with a feeling of faintness, and not unfrequently with giddiness, dimness of sight, flushing or lividity of the face, oppression of breathing, and other symptoms of impeded circulation. Palpitation may be caused by mental emotions, as fear, surprise, &c. It is a frequent symptom in cases of dyspepsia attended with flatulence, and in nervous irritable patients, and in organic diseases of the heart or large blood-vessels.

The treatment of course will depend on our being able to discover the exciting cause. Thus in cases of indigestion, we may relieve it at the time by the exhibition of some carminative medicine, and afterwards attempt to prevent its return by regulating the bowels, and giving tonic medicines. In plethoric patients, we may take away blood at the time, and then prescribe spare diet and counter-irritation. In organic disease we can only palliate the symptoms, and try to retard its progress, by means of repeated small-bleedings, counter-irritation, and low diet, and perfect rest. In the weak, nervous, and irritable, we may alleviate it by means of anodynes, and antispasmodics, and by using measures to restore the general health, by means of tonic medicines, light nourishing diet, and gentle exercise in the open air.

PALSY OR PARALYSIS means the loss of sensation or motion, or of both, in part of the body. It is termed partial when confined to a certain part, or set of muscles; hemiplegia, when one side of the body is paralyzed; and paraplegia, when one half of the body, taken transversely, is affected, as in palsy of the lower extremities.

Palsy is the result of disease or injury of the nerves of the affected part, or of the brain or spinal marrow, from which these nerves proceed. It frequently follows apoplectic attacks, and at one period was confounded with apoplexy, being supposed merely to differ in degree; and even at the present day the term is used sometimes as if synonymous. But although palsy frequently results from apoplexy, yet we frequently see it arise from many other causes, such as injuries or diseases of the spine and head affecting the contained organs, inflammation of the brain or spinal marrow, terminating in softening of these structures, dissipated habits, venereal excesses, the suppression of long continued discharges, the effects of certain poisons, such as lead, &c. Palsy is distinguished from apoplexy by the loss of motion and sensation, being only partial, and generally coming on gradually, by the absence of stertorous breathing, and the pulse being generally less full, and slow, and often rather sunk.

When palsy takes place without any previous apoplectic attack, the premonitory symptoms are, a general torpor or lassitude, occasional giddiness, or a sense of weight and pain in the head, loss of memory; numbness and weight, and a peculiar pricking sensation in the part, pain in the back. Sometimes we find paralysis of an extremity preceded by violent cramp-ish pains in the muscles, gradually the disease becomes more distinct, the motions of the part are weak and unsteady, and these symptoms soon terminate in complete palsy of the part. The speech is frequently impaired from paralysis of the muscles of one side of the tongue, and the face distorted. The bowels are generally torpid, and in most cases the bladder loses the power of contracting, and is therefore unable to expel the urine. When paralysis is the result of injury of the spinal marrow, then of course the paralysis takes place instantly.

The prognosis in cases of palsy is favourable when there is a sense of pain or itching in the affected parts, indicating returning sensation, when the head symptoms are slight, and when the patient is young. It is unfavourable when the parts begin to waste, when the opposite parts are convulsed, when the left side is affected, and when the disease succeeds an apoplectic attack.

Treatment. If the disease comes on suddenly, and the patient is of a plethoric habit, bleeding from the arm or jugular vein should be had

recourse to, followed by purgatives; and at the same time sinapisms and turpentine frictions to the affected part, and blisters to the back of the neck or along the spine, should be applied; and the other points of treatment recommended in cases of apoplexy adopted. When the disease occurs in old or debilitated patients, we must apply blisters to the back of the neck, and stimulating applications, such as hot turpentine liniments, or electricity, to the affected part; whilst at the same time we attend to the digestive organs, which will generally be found to be impaired. With this view the bowels should be kept gently open, and light nourishing diet prescribed, and tonic bitters, in some cases, combined with small doses of some preparation of iron, have been found very useful, but this last should be omitted, if there be much tendency to heat of skin or headache. See *Apoplexy*.

PANCREAS. This body is composed of innumerable small glands, and indeed is a glandular body, of a figure somewhat resembling a dog's tongue, situated in the epigastric region, under the stomach. The excretory ducts of its small glands unite, and form the pancreatic duct. This duct perforates the duodenum along with the duct from the gall bladder, and carries a humour secreted by the pancreas, similar to saliva, into the intestines. The secretion of this humour is said to be the only use or function of this organ. Indeed, some presumptuous physiologists have asserted that man, and other animals who have a spleen and pancreas, would just be as well without them. An eminent anatomist, who, however, would have blushed to call in question the wisdom of our Maker, observes that 'Its great utility appears from its being found in almost all animals; nor is it refuted by a few experiments in which a part of it was cut out from a robust animal, without occasioning death, because the whole pancreas cannot be removed without the duodenum, for even a part of the lungs may be cut out without producing death; but they are not therefore useless. It seems principally to dilute the viscid cystic bile, to mitigate its acrimony, and to mix it with the food. Hence it is poured into a place remote from the cystic duct, as often as there is no gall bladder. Like the rest of the intestinal humours, it dilutes and resolves the mass of aliments, and performs every other office of the saliva.'

PAREGORIC ELIXIR. There are two medicines which bear this name, and are distinguished by the terms English and Scotch paregorics. The former is the camphorated, and the latter the ammoniated tincture of opium. They are both used to allay the irritation in tickling chronic coughs, when inflammation has subsided. The dose is thirty drops or a tea spoonful in a little water, but their respective strengths and doses have been already spoken of in the article on *Opium*, to which we refer our readers.

PAREIRA BRAVA, OR WILD OR BASTARD VINE. The *cessampilos pareira* is a climbing shrub, a native of South America, and of the West Indies. The root of this plant, which is the part employed in medicine, is imported in more or less cylindrical pieces, sometimes flattened or bluntly angular, some as thick as a child's arm, and often a foot or more long. The fracture of the root is coarsely fibrous, without odour, and having a sweetish aromatic, and afterwards a bitter unpleasant taste. The active principle of this root is a yellow, bitter principle, but the presence of nitrate of potash may contribute to its diuretic effects.

It has been employed as a tonic in dyspepsia, where there are no symptoms of gastric irritation, and in urethral discharges of various kinds. It is administered in the form of powder, in doses of half a dram to a dram. The infusion is made by digesting six drams of the root, in thin slices, in a pint or twenty ounces of boiling water, and the dose of this infusion is one or two fluid ounces twice or thrice a day. Sir B. Brodie directs the decoction to be thus prepared: Take half an ounce of the root, add three pints of water, and let it simmer gently near the fire till it be reduced to one pint. To this may be added half an ounce of the tincture of henbane, and in those cases of gravel in which there is a deposit of treble phosphates, a little muriatic or diluted nitric acid may be added. The extract may be used either alone or in conjunction with the infusion. A tincture may be prepared by macerating two ounces of the bruised root in one imperial pint of whiskey or brandy, fifteen over proof, for seven days, and filtering. One ounce of this tincture to seven or eight ounces of the infusion, renders it more efficacious; or the tinctures may be given alone in doses of a dram, in a strong infusion of carrot or parsley seed.

This root and its various preparations above noticed, has been employed in gonorrhœa, leucorrhœa, and chronic inflammation of the bladder. In the latter of these diseases, Sir B. Brodie says, that he has seen more good done by it than by the uvaursa, and he is convinced it has a great influence on the disease, lessening very materially the secretion of the ropy mucus, which is itself a very great evil; and likewise diminishing the inflammation and irritability of the bladder. It was originally introduced into medicine as a lithontriptic, and its powers as such highly rated. Helvetius went so far as to assert that calculi, the size of an olive, had disappeared under its use, and that the operation for lithotomy was no longer necessary. Although this, however, is evidently an exaggeration, this root, either in the form of infusion or decoction, in doses of half a wine

glassful three times a day, no doubt affords great relief in those gravelly affections, and that irritable state of the bladder and urethra so common in old age; and the extract formed into pills with the carbonate of soda, occasionally does wonders in gravelly affections. The following original formula will, we flatter ourselves, be found preferable to any other in common use:

Pareira brava and dandelion root, sliced and bruised, each one ounce.
Boiling water, two pints.

Infuse the roots in the water for a night, then boil on a clear slow fire till the liquid is reduced to one pint and a half, and strain the hot boiling decoction on half an ounce of uvaursa leaves, and the same quantity of each of the seeds of wild carrot, celery, and angelica, and infuse for four hours, and strain. To this strained mixture add two ounces of each of the tinctures of pareira brava and buchu. If kept in a cool place, this mixture will keep a sufficient length of time, or till it is all used, and may be taken in all those cases in which the preparations of the root are ordered, in doses of from one to two ounces, three times a day.

PAROTID GLAND. The largest of the salivary glands, situated in front of and below the ear. It is somewhat square in its shape, and smooth on its external surface, but its internal surface is very irregular, and deeply nitched amongst the important parts at the angle of the lower jaw. Its excretory duct crosses the face for a short distance, and then pierces the buccinator muscle, opening on the inside of the mouth opposite the third grinder of the upper jaw. Like other glands it is subject to inflammatory swelling, which requires to be actively treated. This affection we have already described under the popular designation of mumps. See *Mumps*.

PAROXYSM. A periodical exacerbation or fit of a disease.

PARSNIP, or *Pastinacea Sativa*. The parsnip is a truly nourishing article of diet, and might be more extensively cultivated in gardens than it now is, especially in deep rich soils. The quantity of nutritive matter it contains, is thought to be not quite so great as that of the carrot, although this is doubtful; still, however, it furnishes an agreeable variety, and is even preferred by many to that root. The parsnip is very generally cultivated in Jersey, and the other Channel islands, and is consumed by all classes of people. It is eaten with meat, with milk, and with butter; but not, as is the common mode of using it as human food in England, with salt fish; or as in Ireland, together with potatoes. When boiled and beaten up with an equal proportion of boiled potatoes, they form an excellent pultaceous mass to eat along with salt fish, or any dry kind of animal food; and the mixture is certainly preferable to potatoes alone, especially at sea, as the parsnip possesses considerable antiscorbutic powers, and is supposed to have a hygienic effect in preventing those cutaneous eruptions so liable to follow the constant use of a fish or salt-meat diet. We have seen the best effects result from a continued use of boiled parsnips and sweet milk beat up with potatoes, in affections of the bladder in the aged, where much tenderness of that organ prevails. In these cases it is necessary that this simple preparation should form the principal article of diet, and no fish or salt meat be eaten at the same time.

The favourable effects of this food on milch cows is well known in Jersey, Alderney, and other neighbouring islands, and we hope both as an article of diet and of domestic economy, we shall have the pleasure of seeing parsnips more extensively cultivated. It is easily preserved during the winter in dry sand, and an industrious man, with a young family, could not add a more appropriate vegetable to his winter store than an old sugar crock filled with good parsnips and sand. The parsnip likewise yields an excellent domestic wine, when properly prepared, from which a spirit may be obtained by distillation.

In fine, parsnip is an excellent vegetable for the mariner and emigrant, and may with the carrot, Aberdeen turnip, and beet, contribute to furnish a useful and pleasant variety of sea store. This vegetable is peculiarly adapted for the climate of Ireland, and were the inhabitants of that kingdom instructed to combine the necessary proportions of sand, lime, and manure with the moss earth so abundant in the country, potatoes would cease to be the solitary root that afforded sustenance to the inhabitants, and we should hear less frequently of the ravages of epidemic fevers, and summers of scarcity, and almost of famine.

PARTURITION. The act of giving birth or bringing forth a child; child-birth. See *Labour*.

PASSION. This term is sometimes used to denote some diseases which come on with great severity and suddenness, as for example, iliac passion and hysteric passion.

PASSIONS, OR MENTAL EMOTIONS, when carried to a great height, give rise to certain physical effects, which have great influence on the body, particularly when labouring under disease. The mental passions, medically considered, are divided into the exciting and depressing. Of the former the principal are joy, ambition, anger, and hope; of the latter, fear, envy, jealousy, and grief. Of the exciting passions, anger perhaps is the one which produces the most marked physical effects. There is flushing of the face, glistening of the eyes, and general excitement of the circulation; and in

some cases this has gone so far as to cause apoplexy, and rupture of a blood vessel; hence we see the necessity in cases of aneurism, or where there is a tendency to fullness of blood in the head, of keeping such patients perfectly tranquil. Joy, particularly when sudden, has given rise to madness, and frequently causes swooning, palpitations, &c. Of the depressing passions, grief and fear are too well known as exceedingly hurtful. Sudden terror, particularly in children, may at once extinguish reason, if not life; and instances of this kind from frightening children, by shutting them in dark rooms as a punishment, are by no means of unfrequent occurrence. The debilitating effects of grief are well known, as giving rise to dyspepsia, headaches, and nervous diseases; and so sudden is the effect of intense grief, combined with fear, that during the reign of terror of the French Revolution, several instances are recorded of the hair becoming white, and the whole aspect changed, in the course of a single night.

We should always keep this in view when conversing with nervous and debilitated patients, and take care not to introduce remarks which may alarm them, by recounting bad cases, reporting the prevalence of violent diseases, &c. This should above all things be impressed upon nurses, especially when attending on pregnant females, as they are very apt, by way of showing their own experience, to recapitulate all the bad cases of the kind in which they have been employed.

PASTRY. This article of diet consists of mixing butter or fine lard with dough, which is then baked to serve as a cover for various kinds of pies, tarts, &c. It is exceedingly indigestible, and should be carefully avoided by dyspeptic patients; and is an exceedingly unwholesome article of food for children, however much they may relish it.

PATHOLOGY is that department of medical science which treats of the causes of disease and morbid appearances found on dissection of diseased parts. It may be said to consist in a careful study of the premonitory symptoms of disease; of the symptoms which occur when the disease is fully developed; and of the morbid appearances found on examination of such cases after death. The comparison of the symptoms with the morbid appearances, affording data from which we may be guided in our treatment of similar cases, when they occur.

PEA, or *Pisum Sativum*, is a well known and most esteemed legume, cultivated by both the horticulturist and the farmer. There are a great many varieties, but the white pea is that chiefly used as food by man; the gray varieties being employed as food for horses, pigs, and poultry.

Peas are used in broths, soups, and puddings, and in the west of Scotland, especially in Glasgow, 'pease brose,' as they are called, are made of the fine flour of the white pea, by forming it into a mass merely by the addition of boiling water and a little salt. It is a favourite dish with not only the working classes, but even esteemed by many of the gentry. It was introduced into fashion chiefly by the recommendation of Dr Cleghorn, late professor of chemistry in the university. The peas brose is eaten with milk or butter, and is a sweet nourishing article of diet, peculiarly fitted for persons of a costive habit, and for children. It occasions flatulence and barborignus, or rumbling in the bowels, of some individuals; but the air thus generated generally escapes freely, without occasioning any mischief. In some quarters it is mixed with wheaten flour, and formed into bread; or the pea flour alone is made into cakes or bannocks; but for this latter purpose it is not so frequently employed, even in the agricultural districts, as formerly.

'In boiling split peas, some samples, without reference to variety,' says Mr Loudon, 'fall or moulder down freely into pulp, while others maintain their form. The former are called boilers, and this property of boiling depends on the soil; stiff land or sandy land, that has been limed or marled, or to which gypsum has been applied, produces peas that will not melt in boiling, no matter what the variety may be. The same effect is produced on beans by the soil or manure, and indeed of all leguminous plants, this family having a great tendency to absorb gypsum from the soil. To counteract this fault in the boiling, it is only necessary to throw into the water a small quantity of sub-carbonate of soda.

The pea, either boiled or baked, affords a considerable portion of nutriment, and when not spoiled by too great an admixture of melted butter, or other fats, forms a useful and grateful variety of diet, and a crop worthy the attention of a family who have the luxury of a garden attached to their residence. A thousand parts of pea flour afforded Sir H. Davy 574 parts of nutritive or soluble matter, viz., 501 of mucilage, 22 of sugar, 35 of glutine, and 16 of extract, or matter rendered insoluble during the operation. The pea is preferable to the bean as food for hogs and horses, and in some parts of Scotland pease bannocks are given to horses as a refreshment while in the yoke. Of white peas grown for gathering green, the Charlton is the earliest, and the pearl or common Suffolk most prolific; and when white peas are grown for boiling, that is for splitting, the pearl and Suffolk are also the best sorts. New varieties of the pea are readily procured, by selection and impregnation, a practice most successfully employed by that prince of horticulturists, Thomas Andrew Knight.

PEARS. This well known fruit is a safe article of diet when ripe, and eaten in moderation. Pears may be baked and used in the same form as apples; and the juice fermented makes an excellent refreshing drink, known by the name of perry, which is manufactured on exactly the same principles as cider. The pears employed in the manufacture of perry should not be quite ripe, and the admixture of some wildings will add much to the sprightliness of the taste. Perry resembles Champaign more than any of our other domestic wines, and has been sometimes substituted for that expensive liquor when it is saturated with carbonic acid gas. Perry should be used in moderation by those liable to stomach and bowel complaints, as it sometimes causes colic, especially if it is anywise acid. Either alone, however, or mixed with equal parts of water, it is, when of good quality, an excellent refreshing summer beverage.

PELVIS. The anatomical name for the lower part of the abdomen. See *Abdomen.*

PENNY ROYAL, or the *Mentha Pulegium.* This common garden herb has an aromatic odour, and a warm pungent taste, resembling that of spearmint. It is said to have diaphoretic and expectorant properties, and was at one time greatly in repute in hysteria asthma, hooping cough, and nervous affections. It still holds a place in the pharmacopeias; and a distilled water, an oil, and a spirit, are ordered by the colleges.

The distilled water is impregnated with a small portion of the oil, and is considered as stomachic, carminative, and emenagogue, and is in very common use in some parts of England in hysteria and nervous affections, in doses of a wine glassful, two or three times a day; but more frequently as a vehicle for more active remedies. A tea spoonful or two sweetened, may be given to children afflicted with windy or flatulent colic; and the spirit, in doses of a teaspoonful or two diluted with water, may be taken by an adult; and from four to six drops of the oil on a small bit of sugar, is an ordinary dose for adults. The distilled water and spirit of peppermint or spearmint, in the same proportions, will answer the same purposes.

PEPPER. This term is used to denote the fruit or berries of different species of plants, and which have an aromatic hot pungent taste. Peppers are used principally in seasoning articles of cookery; and are a useful accompaniment to vegetables, as they tend to prevent flatulence, by gently stimulating the digestive organs; but they are hurtful when taken in excess, or by persons labouring under liver complaints. Peppers are sometimes used in domestic medicine as carminatives, and Cayenne pepper forms a useful ingredient in stimulating gargles for relaxed sore throats.

PEPPERMINT. A plant whose leaves have a strong aromatic flavour and pungent taste. The preparations of this plant used in medicine, are the essential oil and distilled water. The oil is a carminative and antispasmodic; the distilled water possesses the same qualities, though of course weaker; indeed, peppermint water sold in the shops is seldom distilled, being generally made by rubbing up a little of the essential oil with alcohol and sugar, and then adding a quantity of cold water, and afterwards filtering through coarse paper or tow; this is equally as efficacious as the distilled, and much more readily procured. It is principally used as a vehicle for other medicines, as it covers the disagreeable taste and prevents nausea.

A drop or two of the essential oil on sugar, or in a glass of water, is often useful in allaying colicky pains, nausea, and flatulence, and even cramp of the stomach.

PERICRANIUM. The dense fibrous membrane covering the bones of the skull is thus named. It is similar to the periosteum which covers the other bones of the body, and has merely received this title from its situation.

PERINEUM. The space surrounding the anus, though the term is sometimes restricted to the space between the genital organs and anus. The perineum in females is sometimes lacerated by the sudden and forcible passage of the child's head during labour, from want of attention on the part of the midwife, and hence we see the necessity of guarding against such accidents, by supporting the perineum with the hand during the time the child's head is bearing down upon it during labour.

PERIPNEUMONY. See *Lungs, Inflammation of.*

PERISTALTIC. This term is applied to the peculiar vermicular motion of the intestine; one portion contracting and forcing its contents onwards into the next portion, the different parts of the bowels rising and falling alternately, so as to resemble the motions of a worm or snake.

PERITONEUM. The serous membrane which invests the abdominal viscera, and lines the internal surface of the walls of the abdomen, allowing of free motion between the contained and containing parts. See *Abdomen.*

PERITONEUM, Inflammation of, or *Peritonitis.* Inflammation of the peritoneum is of two kinds, acute and chronic. The former is characterized by violent, acute, and burning pain, over the abdomen, aggravated by the slightest pressure, coughing, or breathing; the skin is hot and dry; the pulse hard and full; the tongue is foul, with red edges; the urine is generally scanty and high coloured; and the bowels most frequently constipated, though we sometimes find them the reverse; the patient endures great agony from any

movement of the body, and lies for the most part with his knees drawn up towards his abdomen; there is frequently distressing vomiting.

The treatment must be very active. Blood must be drawn freely at the first from the arm, and from 15 to 30 leeches applied over the part where the pain is most severe, and then a large sinapism or a fly blister put on. If the bowels be constipated, an asafœtida injection should be administered, and the following pill given by the mouth:

Calomel, five grains,
Opium, one grain,
Ipecacuanha, one grain,
Extract of gentian as much as is requisite to form the above ingredients into a pill.

If the bowels do not act freely, the injection must be repeated, and a small dose of castor oil given by the mouth; hot cloths may be applied over the abdomen, and the patient may drink sparingly of some demulcent beverage.

Small doses of saline purgatives in warm water are often useful in procuring stools, when the other remedies have failed, but they should be given cautiously. The diet must be very low, and the patient requires to be very careful of himself for a long time after the attack.

PERITONITIS, Chronic. The symptoms of this form of the disease, are, a dull pain and weight over the abdomen, or rather a feeling of uneasiness; the skin hot and dry; the tongue foul; and appetite impaired; and the patient has restless nights, and frequently paroxysms of pain in the abdomen, and diarrhœa, which paroxysms are generally preceded by constipation.

The treatment consists in local bleeding by leeches, or even a small general bleeding where the patient can bear it, which, however, must be rarely the case; blistering the abdomen, and keeping up a crop of pustules by means of tartrate of antimony ointment or croton oil; the bowels must be kept gently open, and the diet regulated. In the aggravated form of this stage, the use of local bleeding, with calomel and opium, given internally, so as very slightly to affect the mouth, forms the most efficacious mode of treatment.

PERSPIRATION. The watery fluid which is exhaled from the skin. This process is constantly going on, and is then termed insensible perspiration; but when it is so excessive as to collect in drops on the surface, it is termed sensible perspiration or sweat. Any stoppage to the perspiration is attended with bad effects, and hence the use of flannel or cotton underclothing for persons whose health is delicate, or who are exposed to vicissitudes of temperature.

PESSARY. An instrument made of wood, ivory, or metal, and used for the purpose of giving support to the parts in cases of prolapsus, or falling down of the womb, and relaxation of the vagina, and for keeping up a particular kind of rupture. Pessaries are made of various shapes, and are adapted to the particular case under treatment. The round pessary, however, is that generally found of most service in prolapsus of the womb, whilst the conical form is used in relaxation of the vagina.

PETECHIÆ. Spots resembling flea-bites, which appear on the body during fever, and some other diseases, as scurvy. See *Fever*.

PHAGADENIC. A term used in surgery to imply a spreading and destructive ulcer, which rapidly involves and destroys the surrounding tissues. The literal meaning of the word being 'eating.' See *Ulcer*.

PHARMACOPEIA. A standard book of pharmacy, containing directions for preparing the various substances used as medicines, and sanctioned by some body of medical men as the colleges of physicians or surgeons, in the particular kingdom or nation.

PHARMACY. The art of compounding or preparing medicines, such as making tinctures, infusions, distilling and making ointments, pills, &c.

PHARYNX. The upper part or pouch of the gullet. See *Gullet*.

PHLEBOTOMY. The operation of drawing blood from a vein. See *Venesection*.

PHOSPHATE OF SODA. This neutral salt has also received the name of tasteless purging salt, as it is in a great measure free from the nauseous bitter taste of the Epsom salts. It is higher priced, however, and not so active as either Epsom or Rochelle salts, but it is better fitted for persons in delicate health, and children. The dose is from half an ounce to one ounce; and may be given in a little weak mutton broth, instead of common salt.

PHYSIOLOGY is that branch of medical science which treats of the functions of organized bodies, human physiology of course being restricted to the study of the natural functions of the human body. These functions have been divided into two general classes, the permanent and mutatory.

The permanent functions are again subdivided into, 1st. Those of the lower order, so termed from their being less immediately necessary to life. These are sanguification and defœcation. 2d. Those of the higher order, or those immediately necessary to life, or what have been sometimes termed the vital functions, viz., circulation, respiration, and innervation.

The mutatory functions are those of reproduction, fœtal life, infantile life, and of the state of decay. The result of all these is life, and above all must be placed the phenomena of the mind. We have given this brief classification of the various objects embraced in physiology, as a kind of guide to assist our readers in studying them in full, for it would be foreign to the intention of a work like the present to attempt

entering into details in one article of all the subjects embraced under the head of physiology; but all the principal physiological phenomena of the human body will be found detailed in full, under their respective heads, throughout this work, as in the articles on *Circulation*, *Nervous System*, *Respiration*, *Digestion*, &c.

PILES. See *Hemorrhoids*.

PILLS. This is a well known formula for prescribing medicines which are of an active nature and small bulk, or when the taste is very nauseous. Pills are made in a variety of ways according to the substances used, some being of such consistence that they can readily be formed into pills without any preparation, such as opium, and some soft extracts; others again, as dry powders, require the addition of some glutinous substance, as mucilage or syrup, to make their particles adhere; whilst in preparing others, such as aloes, it is often thought preferable to dissolve them in alcohol, and then allow the solution to evaporate to a proper consistence for a mass. Pills, generally speaking, retain their active properties well; but some, as for example, the compound rhubarb pill, are apt to become so very hard as to even pass through the bowels undissolved, or at least to be a long time of producing the desired effect. The pills ordered in pharmacopeias, and which are in most general use, are, the colocynth, alœtic, rhubarb, and asafœtida. The formula for preparing these, as well as some other useful domestic remedies of this class, our readers will find in the domestic pharmacopeia appended to this work.

PISTACEA. There are three species of pistacea used in diet and medicine, viz., *pistacea vera*, *p. terebinthus*, and *p. lentiscus*. The first, or *p. vera*, bears the fruit known in the shops by the name of the pistacea nut. Like all other nuts it is heavy and indigestible when eaten in any great quantity. It is used as a desert, but individuals of delicate stomachs should avoid it. It is also pressed for the sake of the fixed oil it contains. The *p. terebinthus*. Hippocrates employed the fruit, buds, and resin of this tree as medicine. It is a middling sized tree of the southern parts of Europe, and of Asia Minor, and supposed to be alluded to in scripture on several occasions. By incisions into the stem there is obtained a liquid resin known in the shops by the name of Chio or Cyprus turpentine, having the consistence of honey, but more glutinous, of a greenish yellow colour, an agreeable turpentine-like odour, and a bitter acrid taste. In its effects and uses it agrees precisely with the turpentines. It is composed of volatile oil and resin. See *Balsam* and *Turpentine*.

The *p. lentiscus* is a native of the same parts, and from incisions into the tree a resin called gum mastic is procured, which is analogous in its effects, but much milder than the turpentines. It is now very rarely employed in medicine, but dentists sometimes use it for filling up the cavities of decayed teeth.

PITCH is prepared by boiling tar, and thus freeing it from its volatile ingredients. It is hard and brittle, and is used in medicine internally, in the form of pills, in some stages of consumption, and its vapour diffused through the bed-rooms of consumptive patients is said also to have been exceedingly useful. In common practice, however, pitch, or more generally common tar itself, is used combined with lard or wax, as an external stimulating application to sores, more particularly to scalled head, ring-worm, &c. During its application, or indeed during the application of any unctuous substance, great attention to cleanliness is absolutely requisite.

PLACENTA. See *Afterbirth*.

PLAGUE. This is a disease of which, in these countries, we fortunately know but little. It would seem from the description of those who have seen it, to be an endemic fever attended by buboes and carbuncles, or some eruption on the surface of the body, and resembling somewhat the worst form of typhus. The disease is ushered in by rigors and oppression, followed by heat of skin, nausea, great prostration of strength, giddiness, and headache; the expression of the countenance is besotted; the pulse varies much, being sometimes quick and full, whilst at others it is rapid and feeble. In some cases there is fierce delirium, in others merely stupor; the nausea and vomiting become almost constant, and there is frequently diarrhea. On the second or third day pains are felt in the arm-pits and groins, and the glands become inflamed, and unless they soon suppurate, the disease is rapidly fatal; carbuncles form over the back, and on different parts of the body; and there is generally an eruption of a livid colour. It is said that if the patient survives to the fifth day, and the buboes suppurate freely, that a favourable termination generally takes place. Convalescence is generally very slow.

The treatment has been so varied, almost every remedy having been tried, that it were needless to recount them. The plan of treatment generally recommended differs but little from that described in malignant typhus, combined with due attention to the local symptoms, such as the buboes and carbuncles. The best preservative against the disease is said to be the application of oil to the surface of the body, and fumigations with vinegar or chlorine gas.

PLASTERS are composed of different materials, according to the use for which they are intended. Some plasters are applied for the purpose of affording support and warmth to the parts, as the Burgundy pitch and strengthening plasters; others are applied for the purpose of gently stimulating the surface in cases of chronic pains, coughs, &c., as the tar and warm plasters, the last being composed of Burgundy pitch with

one-eighth part of blistering plaster. Blistering plaster and its uses have been already described under the proper head; and so has also the adhesive plaster. What is termed court plaster is prepared by dissolving isinglass in spirits, and then spreading it whilst hot on oiled silk, or glazed black silk. It is the best and least irritating plaster which can be applied for the purpose of uniting the edges of a clean incised wound. The common adhesive plaster, however, is more stimulating, and therefore a preferable application to indolent ulcers.

PLETHORA. This is a medical term signifying an excess of blood in the system, or what in common language is termed a full habit of body. This state is by no means desireable, as it predisposes the body to many diseases, from the various organs of the body being engorged with blood. Plethora is marked by plumpness of the whole body, or even corpulency, fullness of the face, and florid complexion, drowsiness, singing in the ears, and occasional headache and dimness of vision. It is generally the result of high living, combined with indolent habits, or at least want of sufficient bodily exercise, or indulgence in sleep; but some persons have a constitutional tendency to this state, whose habits are active, and who do not live luxuriously. The diseases to which plethoric persons are most liable are shortness of breath, vertigo, and apoplexy.

The treatment of plethora consists in strict attention to diet and exercise; bleeding, except when apoplexy is threatened, or there is violent headache, is not beneficial. The patient should live sparingly, taking only small quantities of solid food, and very little liquid of any kind; and avoiding all malt liquors or wines. The bowels should be kept freely open by means of saline laxatives, and an occasional mercurial purge. He should take plenty of exercise in the open air; and the use of the warm bath occasionally will also be found beneficial, as keeping up a free perspiration.

PLEURÆ. The serous membranes which invest the lungs, and are afterwards reflected from them upon the internal surface of the thorax, which they also line. The pleuræ, like all serous membranes, are shut sacs. The serous fluid which is exhaled from their vessels, lubricates the internal surface of the sac, and thus allows of free motion between the opposed surfaces. That portion of the serous sac which invests the lungs, is named the pulmonic pleura, whilst that lining the walls of the chest is termed the costal pleura.

PLEURA, Inflammation of, or PLEURISY. This disease is ushered in by the usual train of symptoms preceding inflammatory action, such as rigors, headache,&c.; these are succeeded by an acute pain at some point of the chest, generally about the fifth or sixth ribs. The pain is sharp and lancinating, as if a knife were thrust into the part, and the pained part is circumscribed, so that the patient often expresses himself to the effect that he can cover the affected part with his fingers. The breathing is hurried and painful, the pulse hard and rather quick, the face flushed and general surface hot and dry, the urine is frequently turbid, and there is generally a troublesome cough, and immobility of the ribs of the affected side.

The treatment of pleurisy, like all inflammatory diseases, requires early and free blood-letting, both general and local, followed by the application of a blister over the part affected, and the exhibition of antimonials in nauseating doses internally. The patient should also have a pill containing five grains of calomel with one grain of opium, and one of ipecacuanha, given two or three hours after the bleeding, and this followed in five hours by a saline draught. The cough should be relieved by some acidulated demulcent drink, taken in small quantities, and by keeping some lozenge, such as liquorice, in the mouth. The above means, combined with low diet and perfect tranquillity, will generally succeed in arresting the disease if used in time. But in some cases effusion takes place, requiring the use of mercurials combined with opium, to be given for the purpose of causing its absorption; and even the use of stimuli to support the strength. Sometimes sero-purulent fluid is effused, distending the sac of the pleura, and compressing the lung of that side, forming the disease termed empyema, and requiring a surgical operation for its cure. In other cases, the inflammation extends to the substance of the lung, requiring the treatment detailed in the article on *Inflammation of the Lungs*. Wherever pleurisy is complicated, with obscure symptoms, or where it resists the remedies we have directed, no time should be lost in obtaining medical advice.

PLEURODYNIA. A rheumatic affection of the intercostal muscles unattended with inflammation, but closely resembling the foregoing disease. The only symptoms which differ being the state of the pulse, and absence of fever. Sinapisms, and free purging, and the warm bath, are generally soon successful; but whenever the patient is young and stout, or where there is any doubt as to the disease being pleurisy, blood-letting should be had recourse to in the first instance as a measure of safety.

PLUMMER'S PILL. This pill is composed of calomel, antimony, and guiacum; and is the compound calomel pill of the pharmacopeia. It is used as an alterative, the dose being one or two pills every second night. It has received the above name from having been invented and extensively used by Dr Plummer of Edinburgh.

PLUMS. These, like all other stone fruits,

are unwholesome when taken in any large quantity, even when fully ripe; and when taken in an unripe state, are almost certain to produce violent retching and colic, or dysentery. Plums, when dried, have received the name of prunes, and these, when stewed, form an excellent article of diet for convalescents or persons in delicate health, as they act as gentle laxatives.

POISONS. In describing the various substances which act as poisons, we have under each particular article detailed in full the symptoms produced by, and the means which are to be used, to remedy its poisonous effects. Under our present head, we shall briefly classify the various poisons according to the arrangement adopted by Professor Christison, in his work on poisons, so that our readers may have a general idea of the whole together, with their mode of action on the animal economy.

1. *Irritant Poisons.* These include all poisons whose sole or principal symptoms are those of irritations or inflammations, such as the mineral acids, oxalic acid, arsenic, mercury, and its preparations; copper, antimony, zinc, lead, silver, caustic alkalies, baryta, sulphuretted hydrogen, and Spanish flies.

The general plan of treatment for this class, consists in evacuating the contents of the stomach by emetics or the stomach pump; giving large quantities of the white of raw eggs, milk, olive oil, lintseed tea, acid solution in cases where alkaline poisons have been taken, and alkalies where the poisons are of an acid nature, relieving the inflammatory symptoms by bloodletting, and other antiphlogistic treatment.

2. *Narcotic Poisons.* Poisons which act upon the brain and nervous system, producing headache, vertigo, stupor, and delirium or coma, as opium and its preparations, henbane, belladona, prussic acid, and carbonic acid gas.

The treatment consists in emptying the stomach, by means of the syringe or emetics; applying cold affusion of ammonia to the nostrils, and rousing the patient by applying sinapisms over the stomach, administering turpentine injections, dragging him up and down the apartment to prevent him sleeping, and after the stomach has been freely emptied, giving strong coffee, or some vegetable acid drink. Bloodletting, when employed with proper precaution, is often serviceable in relieving the effects of this class of poisons.

3. *Narcotic Acrid Poisons.* Poisons which produce both narcotism or irritation, either singly or combined. They all belong to the vegetable kingdom. The best examples of this class are, nux vomica and its preparation strychnia, hellebore, and the various poisons, fungi or false mushrooms.

The symptoms produced are violent spasms of the muscles, resembling tetanus, heat and burning pain at the pit of the stomach, and delirium or coma immediately preceding death.

Treatment. The use of the stomach pump or emetics, bland demulcent drinks, olive oil in small quantities frequently repeated, venesection, warm bath, and sinapisms over the stomach.

POLYPUS. Pendulous tumours which grow in various parts of the body; but most frequently in the back part of the nose, and in the womb. Polypi are of two kinds, the simple and malignant. The simple polypus is soft, and attached to the mucous membrane by a narrow pedicle, and generally arise in clusters, so that when situated in the back part of the nose, these tumours often project downwards beyond the soft palate, and prevent free breathing. The treatment of this species consists in removing the tumours at different times, till the whole are extracted, and the passage cleared.

Malignant polypus has generally a broad base, and is either of fibrous or cartilaginous structure, and ulcerated on its surface, or of a soft brain-like appearance. In such cases, no operation should be performed for its extraction, as it is sure to return, and will be likely to favour the more rapid progress of the disease.

POPLAR, or *Populus Tremula.* All the species of the poplar, but especially the tremulous, sometimes known by the name of the quaking ash or aspen, from the constant motion of the leaves in the calmest day, possess a greater proportion of *salicine* and *populine* in their bark. The *p. tremula* is, however, entitled to most notice as a medicine, and is not an unworthy substitute for the Peruvian bark in almost every case for which that bark is employed, in the same, or rather larger doses. The bark, when peeled off in the spring, and properly dried, may be formed into decoction, infusion, extract, or tincture, as is directed in the case of cinchona or Peruvian bark, to which we refer, and may, as already stated, be given in rather larger doses in all cases in which the use of that bark is indicated.

In a season of great sickness on the west coast of Ireland, and when Peruvian bark was scarce, the bark of the trembling poplar was employed with the best effects, especially in the form of decoction in the sequel of fever. It is an excellent tonic fibrifuge medicine, and well entitled to the notice of the domestic practitioner, and those who cannot afford to purchase either the Peruvian bark or quinine.

POPLITEAL ANEURISM. Aneurism of the artery in the ham. It is distinguished by a pulsating swelling being found in that position. See *Aneurism.*

POPPY. See *Opium.*

PORT. See *Wine.*

PORTER. See *Beer.*

POTASH. One of the alkalies obtained from vegetables by incineration; indeed, at one time it was named vegetable alkali from the supposition that it only existed in the vegetable kingdom. It possesses the usual properties of alkalies, viz., acrid taste, neutralizing acids, and changing vegetable blues to green. It is used in medicine in its pure form as a caustic, and in solution in doses of twenty or fifteen drops combined with an ounce or two of camphor mixture or water, in cases of irritable bladder, stone, gravel, &c., for the purpose of correcting the acid state of the urine.

The salts of potash principally used in medicine are, the carbonate, which is given as antacid, or combined with water and lemon juice or citric acid, as an effervescing draught: the acetate, given in doses of from five to ten grains in a decoction of pareira or quassia, twice or thrice a day, as a diuretic: the nitrate or saltpetre or nitre, which we have already spoken of under the designation of nitre: the supertartrate or cream of tartar, which forms an excellent cooling purgative and diuretic: the sulphate, also used as a saline purgative; and the sulphuret, which is principally used in imitating the sulphuretted mineral waters and medicated baths for skin diseases.

POTATO. This vegetable, with which every one is familiar, forms an excellent article of diet, as it contains a large quantity of farinaceous nutriment; and it is generally easy of digestion when well boiled. But there are, nevertheless, certain states of the stomach where potatoes are hurtful, as where there is a tendency to flatulency and feeling of fullness after meals; and also in persons who are just recovering from severe illness, or in cases of bowel complaint, as they are apt to increase the irritation in the intestinal canal.

POWDERS. A great many articles of the materia medica are prepared in this form, that they may be more readily combined with other substances, but it is not very frequently that they are administered in the form of powder; for those which are very nauseous are generally made into pills, and those which are heavier than water, such as calomel, antimonial powder, &c., require to be mixed with jelly, treacle, or some conserve, so as to form a bolus; whilst those which are soluble, and those which are light, are given in solution, or suspended in some fluid. In preparing certain powders, it is often necessary to combine with them some hard gum or neutral salt whilst preparing them, so as to separate their particles more effectually. Thus in Dover's powders of opium and ipecacuanha, the sulphate of potass is added for this purpose.

Some powders, such as magnesia, bark, &c., are insoluble in the stomach, except by combining with the free acid, and thus forming a neutral salt; and hence, when these have been taken in large doses, and continued for a length of time, they have sometimes formed concretions in the intestinal canal.

PRECIPITATION is a chemical process, effected by uniting two or more bodies, as for example, an acid, an oxide, and a third body being added, such as an alkali, which has a greater affinity with the acid than the metallic oxide; the consequence is, that the alkali combines with the acid, and the oxide thus deserted appears in a separate state at the bottom of the vessel in which the operation is performed. This decomposition is known by the name of precipitation, and the substance that sinks is named a precipitate. Thus we have precipitates of chalk, mercury, iron, &c.

PREDISPOSING CAUSE. Any cause which renders the body susceptible to disease, is called a predisposing cause. For example, drunkenness predisposes the drunkard to cholera and fever, and other diseases; and such are the effects of age, temperament, and habit of body, some individuals being more disposed to particular diseases than others; and hence that constitution of the solids or fluids, or of both, which disposes the body to the action of disease, is called a predisposition.

PREGNANCY. There is considerable difficulty often and uncertainty in distinguishing accurately the symptoms of pregnancy, for there are many diseases which assume the appearance of this condition; such, for instance, as polypus of the uterus, tympanitis, or wind in the bowels, and different kinds of dropsy, suppression of the menses, induration of the liver, and spleen. In addition to this, pregnancy may be uterine or extra-uterine, or it may be simply complicated or compound, each of which causes increases the difficulty of diagnosis. There is no subject, however, on which a young married female often feels a greater interest, and it is in her case, and in that of females who have been some years married, and have had no children, but feel some of the symptoms of pregnancy, that the greater part of the difficulty rests in ascertaining the true state of the case themselves, without requiring any information from another upon the subject, for sensible observing women, who have had one, two, or more children, can generally decide the point with a considerable degree of accuracy.

But as there are cases in which pregnancy may be, and often is, concealed, in order to avoid disgrace, or with a view to destroy the child, either by procuring abortion or other means; and as it may also be pretended either to gratify the wishes of the husband, or to deprive the legal succession to extort money, or to delay the execution of punishment, it often becomes a subject of judicial inquiry, and one on which the medical jurist must decide. In all

these points of view, the subject is deeply interesting not only to married females, and those who have had families, and are frequently consulted by their young married friends, but to midwives, young practitioners, and others, for whose benefit our work is intended; we shall endeavour to render it as plain as possible.

Symptoms of Pregnancy. The sympathy which exists between the uterus and the stomach, as loss of appetite, nausea, vomiting, and longings or depraved appetite, and suppression of the menses, are among the first symptoms felt by woman after conception. The vomiting generally takes place in the morning or after meals, and is often accompanied with headache, drowsiness, and a slight degree of fever. The breasts swell, the veins become larger, and the nipples are surrounded by a dark areola, and are more sensible. The countenance becomes altered, the eyes appearing larger, and the mouth wider, and the nose and all the features acquire a peculiar sharpness; the sleep is frequently broken, and the temper irritable, leading some young husbands to suppose that they have made a worse bargain than they really have done. These symptoms are sometimes accompanied with toothache and other anomalous affections, such as heartburn, indigestion, difficulty of breathing, sighing, diarrhea, or its opposite, constipation, and sometimes convulsions, and other nervous affections. If a vein is opened, the blood is frequently sizy, but the crassamentum is not dense or firm, with a buffy coat, depressed in the middle, but of a soft texture, an oily and more yellow appearance.

Many women, soon after their pregnancy, are so much altered in their looks and feelings, inducing a disposition of mind which renders their tempers easily ruffled, and often incite an irresistible propensity to actions of which on other occasions they would be ashamed; and the woman has a particular appearance, resembling what we have described; but with which many women, and a practised eye in such cases, can more easily discover than the pen or tongue can delineate. Young husbands are often as much at a loss for information of this kind as their inexperienced partner, who now requires all the sympathy, forbearance, and affectionate kindness they have it in their power to bestow. As pregnancy advances, the navel becomes prominent, and the inferior extremities, in some cases, edematous or swelled.

These *breeding symptoms*, as they are usually called, and which we would call presumptive proof of pregnancy, originate from the irritation produced on the womb by impregnation; but as they may proceed from any other circumstance which can irritate that organ, they cannot be depended on when the woman is not young, or where there is not a continued suppression of the menses for at least three months. Indeed there are some *rare* cases in which the menses continue during the whole period of pregnancy, and there is not unfrequently a slight discharge during the first three months; but the first of these cases, viz. the regular appearance of the menses during pregnancy, is, as we have already stated, *extremely rare*, and we have met with few practitioners that have seen an instance; even the celebrated Dr Denman appears never to have met a case of the kind, although some well authenticated cases are on record.

From the fourth month the symptoms are more evident, after the womb has ascended into the cavity of the belly, or abdomen. About this period, too, or a short time after, indeed, most generally about the half period, or four and a half months, the child becomes so much enlarged, that its motions begin to be felt by the mother, and this period is called *quickening*, or, to use the phraseology of the law, the woman is said to be *quick* with child, and it is considered generally as a most certain sign or proof of pregnancy, and may certainly be considered as such by a young healthy woman, who was not afflicted with any disease of the womb, or subject to any irregularities before marriage; but as the motion of the child cannot be explained or accurately described, women may possibly mistake other sensations for that of quickening; and women who are married at a late period of life, and anxious to have a family, are most apt to mistake the circumstances which appear at the decline of life for the signs of pregnancy, and such cases are often troublesome to those about them, for the woman studies the breeding symptoms, and forces herself into a belief that she feels every one of them. No experienced male or female practitioner, who lays the hand on the abdomen of a woman quick with child, and feels its motions, need, however, be at any loss, in ninety-nine cases out of every hundred, to decide on the fact.

After quickening, the womb rises gradually from the cavity of the bason, or pelvis, enlarges the abdomen, and pushes out the umbilicus, or navel, which last circumstance may be considered one of the most certain signs of pregnancy in the latter months. Yet any other disease tending to increase the bulk of the belly may occasion this symptom, and it cannot be implicitly relied on unless other signs concur to strengthen the belief. Among other advantages derived from the invention of the stethoscope, it is a most valuable mean of ascertaining the existence of pregnancy after the ascent of the womb; or even by applying the ear to the abdomen, the throbbing of the heart of the fœtus may be heard, and it is easily distinguished from the pulsations of the mother by its rapidity, for the pulse of the fœtus is from 120 to 160 in a

minute, while that of the mother, which proceeds from the insertion of the placenta, is isochronous, or having an equal number of beats with the pulse at the wrist. As we are anxious to arouse the attention of female practitioners of midwifery to the vast importance of acquiring a knowledge of the use of this instrument in such cases, we shall further explain, that in applying the stethoscope to the abdomen of a pregnant woman, during the latter months of gestation, the ear detects two species of pulsation, which are not only perfectly distinct from each other in point of character, but are heard in separate portions of the abdomen. One of them consists of very distinct double pulsations, which follow each other rapidly, producing a species of ticking sound, generally heard about the middle of the gravid uterus, rather more to one side than the other, and, generally speaking, to the left side. The other is a simple pulsation, following a much slower rhythm, and accompanied with a deep wheezing, and, according to Dr Rigby and some other accurate observers, sometimes twanging sound, which may be heard in several parts of the uterus, but chiefly and most distinctly in the neighbourhood of the fundus, or upper part of the womb. The former of these sounds is produced, as we have already stated, by the heart of the child; and the latter by the blood of the mother circulating in the spungy vascular structure of the womb. The sound of the fœtal heart, or, in other words, the heart of the child in the womb, is, when heard, a perfect diagnostic proof not only of pregnancy, but of the life of the child; still its absence is very far from proving the contrary, especially when any of the other signs of pregnancy are present. The auscultation of the gravid womb, or the right practical use of the stethoscope, in determining these important questions, although somewhat difficult at first, may, with a little practice, a good ear, and a few lessons from one well versed in the use of the instrument, enable any intelligent person to acquire a certain knowledge of the sounds; and we seriously advise every midwife and student of medicine not to rest satisfied till they acquire a thorough knowledge of the subject.

At the *seventh month* the head of the child can be felt on examination, and then there can be no doubt whatever. In short, there are only three certain signs of pregnancy, viz. feeling the head per vaginam; and second, the motion of the child through the parietes or external covering of the abdomen; and lastly, hearing the pulsations of the fœtal heart. So very important do we consider this subject, that we wish every student of midwifery, male and female, and, indeed, every practitioner, young and old, would read, mark, learn, and inwardly digest, practise, and act upon, the sentiments expressed in the following paragraph. 'No department of the healing art,' says a celebrated reviewer, 'requires more skill, more caution, more of gentlemanly character, more of sound information on all subjects, than the properly educated accoucheur of the present day. Cases of the most perplexing difficulty, involving character, fortune, nay, even life itself, and of the most frightful danger and responsibility, are frequently entrusted to his charge; his opinion will and ought to be the opinion of all others, and his conduct may either save or destroy. Let him not neglect, therefore, any means of adding to his knowledge, and supplying himself with useful and available information. Among such means, none promises more important results than the use of the stethoscope. When all the ordinary symptoms of pregnancy are absent, or so muffled and obscured as to afford scope only for conjecture, if the fœtal pulse can be heard but once unequivocally, the nature of the case is obviously beyond cavil, the auscultator need not heed the discordant opinion of others, for what more can he desire than to have held converse as it were with the very being whose existence is disputed.'

But lest this eloquent pleading should be lost on any student or practitioner, who may deign to consult our pages, we shall shortly narrate the awful consequences of ignorance on those important topics, and we could easily fill a volume of no ordinary extent by relations of an equal melancholy and tragical description. We now quote from the celebrated Baudalocque: 'A young French countess was imprisoned in the temple, during the revolution, for being suspected of carrying on a treasonable correspondence with her husband, an emigrant. She was condemned, but declared herself pregnant. Two of the best midwives in Paris were ordered to examine her, and they declared she was not pregnant. She was accordingly guillotined, and her body taken to the school of anatomy, where it was opened by Baudalocque, who found twins in the fifth month of pregnancy.' A similar case occurred at Norwich a few years ago. A woman was condemned, but she stated herself to be with child. A jury of matrons was empannelled, and after due examination, decided that she was not so. Upon being sentenced she fainted, when the surgeon of the prison, who was standing by, and caught her in his arms, declared that he distinctly felt the motion of the child; other medical men declared she was pregnant, and judgment was delayed accordingly. Here, therefore, in the first case, two human beings were sacrificed; and but for an unlooked-for interference, another would have shared the same fate, and fallen victims to the ignorance of midwives or a jury of matrons; it being the law of France and Britain, and was so even of ancient Rome, and is now of every civilized nation, that pregnancy is con-

sidered a sufficient reason to respite the execution of judgment, that the innocent unborn may not suffer with the guilty. There are certain indications, as already hinted in the commencement of this paper, in which the female system puts on a most striking resemblance to pregnancy, without at all depending upon the actual presence of pregnancy. The abdomen begins to swell from the pubic region, or lower part of the belly, exactly in the same gradual manner as in pregnancy; the breasts become painful, swell, and even secrete a lymphatic fluid frequently resembling milk; the digestive organs become disordered; irregular appetite, nausea, and inclination to vomit; constipation, muscular debility, change in the colour of the skin, and frequently of the whole condition of the body, ensue; the nervous system suffers, and even the mind itself frequently sympathizes; the patient is sensible of movements in the abdomen like those of a living child; then bearing-down pains, running from the loins to the region of the pubis; latterly pains come on resembling those of labour; and if by chance it so happens that her former labours have been attended by any peculiar symptoms, these, as if it were to complete the allusion, appear likewise. Many well authenticated cases of this description are on record; but the most extraordinary we have ever read is the case of a lady who was previously the mother of thirteen children, and who, in her former pregnancies, had been always able to tell on what day she would be taken in labour; and on this last occasion, which she supposed to be her fourteenth labour, she told the surgeon who had formerly attended her the day she would again require his assistance. Pains came on that very day, attended with violent convulsions. Another surgeon was called in, and a consultation held, but no child could be found. The pains and convulsions left her on the second day, in the same state of health they found her.

Pregnancy may also be complicated with uterine disease, as with the presence of hydatids, or with a polypus or a mole, and there are cases on record where women have been sacrificed on such occasions by the introduction of a trocar or instrument into the abdomen, expecting to meet with a dropsical fluid. Molar concretions, polypi, and hydatids, frequently assume so much the character of genuine impregnation, as not to be easily distinguished. In general, however, according to the authority of the learned and revered Dr Good, the abdominal swelling for the first three months increases far more rapidly than in real pregnancy, after which it keeps nearly at a stand; the tumour, moreover, is considerably more equable, the breasts are flat, and do not participate in this action, and there is no sense of quickening. There is almost always a retention of the menses.

Even the appearance of milk may be unattended with pregnancy, as friction and suction will sometimes produce it. Beltor relates the case of a servant girl who slept in a room with a child which disturbed her by its cries; she imagined that by putting it to her breasts it might be quieted, and in a short time she had milk sufficient to supply its wants. Many such cases are on record, supported by the most unquestionable authority; and we knew an old woman of sixty who had milk in her breasts two or three years about that period of life.

With respect to twins, it is almost impossible to decide whether they be present or not merely from the size of the abdomen, because we constantly see women pregnant whose abdomen is immensely distended, and yet there is but one child. On the other hand, it often happens that those who have twins have not been at all remarkable for their size during pregnancy, nor had they any reason whatever to suspect the presence of twins. Some affirm that the motion of the child is always felt on both sides, and that the abdomen is broader; but very little reliance can be placed upon these appearances. We do not doubt that more signs of the existence of twins will yet be satisfactorily ascertained by a further knowledge of the stethoscope.

It is right we should here allude to another new mode of detecting pregnancy at an early period by chemical analysis. By allowing the urine of pregnant women or nurses to stand for some time, in thirty or forty hours a deposit takes place of white flakey pulverulent granous matter, being caseine, or the peculiar principle of milk formed in the breasts during gestation. The precipitation is more readily procured by adding a few drops of alcohol to the urine. The presence of this matter in the urine is a new and highly valuable mode of detecting pregnancy; and M. Nanche has recently applied it in the happiest manner. Having been consulted by a female whose menstruation was arrested, and her abdomen so voluminous that the existence of pregnancy could not be decided by the touch, the abundant osseous deposit from her urine at once enabled M. Nanche to pronounce her pregnant. Soon after she was admitted to the Hotel Dieu. The physician of the ward and several of the pupils examined her vaginam, and even with the stethoscope, and all agreed that she was not pregnant; her state, however, soon became evident, and she was delivered at the natural time.

Facts of this description cannot be over-valued, but their importance is only known after the fullest investigation. It will, however, be an easy method of ascertaining the true state of a woman supposed pregnant, and in conjunction with the stethoscope, afford both the practitioner, and in most cases the patient, a high degree of

satisfaction. A few cases, however, will not suffice to establish the truth; and it will require the united endeavours of the faculty to settle the proof on a firm basis.

Period of Pregnancy. Before entering on the consideration of those diseases or troublesome affections which affect some females during pregnancy—for there are happily many females who do not suffer a day, or even an hour's sickness from the time of conception till that of delivery—we shall offer a few remarks on the usual period of pregnancy, a subject which has not unfrequently engaged the attention of the highest courts of appeal, and called forth the evidence and experience of some of the brightest ornaments of the medical profession. Women are generally delivered of the child in 273 days, or thirty-nine weeks, after conception; but perhaps the most usual period of pregnancy is 280 days, which is forty weeks, or nine calendar months and ten days. By the law of France, a child born within 180 days, or about six months after marriage, and 300 days, or about ten months after the dissolution of marriage, is considered illegitimate. The period especially to which gestation, another technical term for pregnancy, may be protracted, has ever been a favourite subject among legal casuists, and by some has been protracted to an incredible length. Dr Hamilton remarks, that if the character of the mother be unexceptionable, a favourable report ought to be given, though the child should not be produced till nearly ten calendar months after the absence or sudden death of her husband. Dr G. Smith relates, that it is admitted a woman may carry a child to the eleventh month, while others deny that any determinate period is assigned for the duration of human pregnancy.

Dr Good says, that twelve months is a term allowed by many physicians as what may take place under peculiar weakness or delicacy of health; but Dr G. at the same time observes, that it is most probable that in all these the mother is mistaken as to the proportion of her conception, and imagines herself to have commenced pregnancy for some weeks or months before it actually takes place. Haller gives references to women who are said to have gone not only ten, but eleven, twelve, thirteen, and even fourteen months. According to the laws of France and of Scotland, the shortest period of gestation or pregnancy compatible with the life of the offspring, appears to be about six months. Dr Good observes, there can be no doubt that a considerable difference in duration may ensue from the states of the mother's health, for as the fœtus receives its nourishment from the mother, there is a probability that various deviations from health may retard the maturity of the fœtus; and it is probably on this account that different legislators have assigned different periods of legitimacy, one of the shortest of which is that determined upon by the faculty at Leipsic, who have been complaisant enough to decide that a child born five months and eight days after the return of the husband, may be considered as legitimate, and that a fœtus at five months is often a perfect and healthy child. In this decision we apprehend few British practitioners, and still fewer British husbands, would feel inclined to acquiesce.

The dietetic and medical treatment of the pregnant female is sometimes a matter of difficulty, and requires considerable address, not only on the part of a medical adviser, but likewise on that of the husband, friends, and relatives. Happily the greater proportion of females among the middle and even hard-working classes of society suffer very little during the period of gestation, but in general they feel the most distressing symptoms in a first pregnancy. The most healthy women, indeed, are as subject to sickness and vomiting during the early months of pregnancy as those who are weak and delicate; and it is no extraordinary circumstance to see a stout plethoric female accustomed to labour and habits of temperance suffering from heartburn, morning sickness, and anxieties, when one more delicately reared, and of a less robust frame, entirely escapes. Pregnant women, as we have already stated in enumerating the early symptoms in general, are more exciteable and sensible, and suffer from innumerable nervous and anomalous symptoms. Some are exhilarated, others depressed, some become excessively nervous, bilious, or hysterical, others enjoy much better health than at any former period of life. Some who are naturally gay and amiable, become sad, melancholic, and unsociable; while others enjoy the highest spirits. The appetites are often much altered by pregnancy, and the vulgar attach great importance to the different tastes and longings, and these, as a general rule, may be gratified whenever wholesome and suitable aliments are desired, but not otherwise. It would be wrong for a pregnant woman reared in civilized society to eat crude vegetables, raw turnips, carrots, and similar and even more improper food, without culinary preparation.

A voracious appetite will require a greater quantity of aliments than ordinary, but not so much as would be injurious. A variable appetite will be satisfied with a frequent slight repast; and a diminished appetite stimulated by such food as the woman desires. It is not necessary for the growth of the fœtus that the mother should take more food than usual, as she may take it to satiety. Every description of high seasoned foods, and the frequent, but especially the excessive use of wines, spirituous or fermented liquors, brandy, whiskey, gin, rum, ale, porter, stout, &c., and also tea, coffee, and

chocolate, are highly injurious to the mother and infant, but especially the swallowing of large draughts of strong tea or coffee without sufficient plain solid nutriment. These liquors injure the pregnant woman, and expose her to danger during parturition, and to fever or inflammation afterwards, while they arrest the growth, and destroy the health of the infant. It is impossible to lay down rules for the quantity of diet or drink, but nature is the best guide. As a general rule, the simplest aliments of the easiest digestion, and containing most nutriment in a small volume, are those most appropriate for pregnant women, taking slight repasts, and never overloading the stomach. This is the more necessary, as the appetite is capricious, and fancies food disliked before conception, while those formerly relished are now discarded, and especially the sight of animal food disgusts many pregnant females. Wholesome aliments, such as beef, mutton, veal, &c., plainly cooked, roasted, or boiled, in preference to being baked; and the crust of pies, &c., made with a large proportion of melted butter, or rather fats, should be studiously avoided, as should all salted or smoked aliments, especially the fat, although the lean of well cured smoked ham, in small quantity, is not injurious. The flesh of all young animals, as veal, lamb, kid, and chicken, are neither so nutritious nor easily digested as the full-grown and fat oily food, such as pork, duck, butter, &c., which although yielding a considerable portion of nourishment, are in general not relished during pregnancy; while some kinds of fish, such as fresh ordinary sized whiting, haddock, and trout, if in season, are easily digested, and will often be retained on the stomach when other aliments are rejected. No rich sauce should be eaten along with them, except a very small portion of butter melted by the heat of the fish, and a little real mushroom ketchup. Farinaceous foods, bread, rice, potatos, steamed or roasted, peas, sago, arrow root, tapioca, and salop, and an occasional supply of the Carrahageen or Iceland mosses. Vegetables, well boiled, may be combined with animal food in small quantities, and next to potatos, parsnips, Swedish and yellow turnips, carrots, and cauliflower, are to be preferred. In conjunction with these, pepper may be used in very moderate quantities, as a condiment. Sweet fruits or sugar should be used in moderation, and in those states of society where the individual has been accustomed to the moderate use of wine, or ale, or porter, they need not be discontinued, unless they are found to produce heartburn or acidity, which they frequently do. But we repeat, that it is only in the greatest moderation, and these liquors should not be adopted by those who have not been previously accustomed to use them. In the very delicate and irritable state of the stomach in most pregnant women, it is highly necessary that the food should be well masticated or divided with the teeth, to render it more fit to be acted upon by the stomach, and drink should be used sparingly, for if the gastric fluid be too much diluted, it cannot act on the food in an efficient manner; indeed, this latter precept applies to all persons of delicate stomach, but particularly to pregnant women. To promote this object, a part of the bread used may be in the form of hard baked biscuit, such as the better kinds of ship biscuit; or there is a very fine kind made by most of the regular respectable bakers, which we can recommend as being well manufactured of the best of articles, viz., fine flour, water, and salt, and not of those heterogeneous materials of which many of the fancy and Abernethian biscuits are formed. Good biscuits are easily procured in every town and village in these kingdoms.

Mental and moral dietetics are as necessary to be attended to, and perhaps even more so, in the case of pregnant females, than even the regulation of the stomach and bowels, and the furnishing of the breakfast, dinner, or supper table. The mind should be kept tranquil, and even if the young wife should occasionally appear somewhat unreasonable, friends and domestics should bear with her temper, but especially the husband, whose duty it is to bear with the weaker vessel, and to love and cherish the wife of his bosom. The pregnant female should never entertain any fear as to a safe delivery. Parturition or child labour is a natural process in a state of health, and bad labours are comparatively few, and even married child-bearing females have the best chance of long life and health, seeing that their lives will be insured at a less premium even than that of their husband at the same age. Female friends and visitors should keep any untoward or difficult delivery an entire secret from their pregnant relations, as depression of mind, and the relation of difficult or fatal cases to one who has the prospect of labour before her, often produces unavoidable mischief. Assemblies, balls, theatres, all public sights, exhibitions, and seeming dangers, should be avoided by pregnant women, and indeed all crowded meetings where the air is contaminated. Want of rest, long watchings, as well as powerful emotions, excite the nervous system, impair the strength, and derange the whole functions of the body, and violent passions are always and particularly injurious. Frights, longings, and despondency, may retard the growth of certain parts of the infant during the early part of its existence, but this cannot happen after it is fully formed. In conclusion, we may be allowed to include under the head of mental and moral dietetics, a caution recommending reserve in the indulgence of nuptial commerce, as it may in many cases disturb the

womb, and bring on abortion or miscarriage, as frequently happens, and the ground uterus is more easily excited in the first and later months of pregnancy. See *Abortion.*

The exercise and dress of a pregnant woman. Eight hours repose, and that in season, retiring to bed at an early hour, and sleeping in a well ventilated apartment. Walking is perhaps the best and safest mode of exercise during the period of utero-gestation, but neither it nor any other species of exercise should be taken to fatigue. Moderate carriage exercise and sailing may likewise be used with advantage, but we never see a pregnant female on horseback, even if an accomplished equestrian, but with unpleasant feelings. Riding in carts without springs on rough roads, and running and dancing, are all to be reprobated. Regular and continued exertion, where no particular sudden action of the abdominal muscles is required, is often borne by women in the lower ranks of life, even to an hour before labour commences, without any apparent injury; and we have often been surprised at the loads of fish, salt, &c., some of the women in Edinburgh, Leith, and Newhaven, can carry during the whole period of their pregnancy. Other hints on exercise will be found under the article *Abortion*, &c.

The dress of a pregnant female is likewise a matter of some importance. It should be suited to the season, and always loose; tight lacing is always injurious, as it impedes the breathing, prevents the development of the abdomen and breasts, arrests the growth of the infant, and inevitably insures inflamed breast and sore nipples after delivery, thereby subjecting the mother to great suffering, and depriving the infant of the aliment which nature intended for it. There is no great objection to the use of properly constructed stays or corsets during the first four or five months of utero-gestation; but after that period they should be worn loosely. In fine, tight lacing in the advanced stage of pregnancy, will induce many painful and dangerous diseases, obstinate coughs, spitting of blood, palpitation of the heart, swelling of the lower limbs, enlargement of their veins, piles, costiveness, heat and scalding on evacuating the bladder; indeed, did mothers only know the one half of the injury entailed on themselves and offspring by tight lacing, they would abandon the unnatural practice, and adopt a form of costume more consistent with the principles of physiology and common sense.

A little medicine is occasionally required by pregnant females who even enjoy a competent share of good health during this interesting period, as it is of the utmost importance to preserve the free and easy action of the bowels, so that at least one easy motion may be had every twenty-four hours. In the course of our work a variety of very useful forms of medicine will be found for this purpose, such as the infusion or electuary or confection of senna or cassia; or mild laxative pills, such as two drams of the compound extract of colocynth, and half a dram of the extract of henbane, beat into a mass, with a few drops of any of the essential aromatic oils most agreeable to the patient, and divided into thirty-two pills, of which two or three may be taken every second or third night. Six drops of the oil of peppermint, carraway, cloves, or cinnamon, whichever is most agreeable, as even the smell of a medicine sometimes creates a disgust in the mind of a pregnant female. There is one excellent medicine for facilitating the operation of these laxative pills, viz., a draught made by the Seidlitz powder, or what is more agreeable, the sodaic powders. If a sweetened infusion of ginger is substituted for water, either of these will be more agreeable; but when the sodaic powders are taken with a view of acting on the bowels, there should not be less than a dram of the carbonate of soda, and forty-five or forty-eight grains of the tartaric acid in the half pint of the ginger infusion, those sold in the shops being too weak. One or two tea spoonfuls of tincture of ginger, and a little sugar, is a ready and good substitute for the infusion.

Where there is a disposition to piles as well as costiveness, the very best medicine that can be employed is a mixture of two ounces of magnesia, one of sublimed sulphur, two drams of powdered ginger, intimately mixed, and kept in a well-corked wide-mouthed bottle, and a tea or desert spoonful, or as much as can be lifted on a penny piece, to be taken in a cup of sweet milk every other night at bed time. A horn or wooden spoon, or a bit of window glass, should be used in lifting or mixing it with the milk, as the sulphur will blacken a silver, or even almost every other kind of metal. This preparation will keep the bowels in a mild easy state, and at the sametime prevent acidity.

The diseases and accidents to which the period of pregnancy is liable are various, and of these abortion or miscarriage is one of the most important, and will therefore be found treated of under its proper designation (*Abortion*) at very considerable length; and many useful hints may be gathered by those who take the pains to consult several of our otherwise apparently trifling paragraphs.

Morning sickness and vomiting we have, however, long known to be one of the most troublesome symptoms of pregnancy. It is, however, seldom dangerous, and when it does not materially impair the general health, is to be regarded as a favourable sign, as it tends to prevent the formation of too much fluid, which is one cause of miscarriage. This sickness and vomiting seldom lasts beyond the third month; but sometimes continues till the period of quickening; and we have seen some severe cases, in

which such an extreme delicacy of the stomach existed, even during the latter period of pregnancy, and after the vomiting had ceased; thus, the most trifling circumstance would occasion nausea, or even vomiting. When sickness and vomiting exist to a great extent, the region of the stomach may be covered with a sinapism the size of our page for half an hour daily, for two or three days, shifting the situation and locality, that is to say, place the bag in which the sinapism is contained longitudinally from the sternum to the navel, then across the region of the stomach, and then on each side. These applications will occupy four days, and if no effectual relief is obtained from them, the whole region of the stomach, from the breast bone down to the navel, may be covered with equal parts of a Burgundy pitch, and resinous or adhesive plaster, in which is mixed two drams of each of the fine powdered leaves of monkshood, hemlock, henbane, and of opium. The plaster is to be melted over a slow fire, and when removed from the fire, the powder previously mixed is to be stirred in, and the plaster spread on fine soft leather. If the plaster is not sufficiently adhesive, it may be kept in its place by a cushion or pad of the same size fastened over it by tapes at each corner. Blood to the extent of from ten to sixteen ounces is to be taken from the arm, and the bowels kept open by two or three or even more, double sodaic powders in the course of the day. That is, by dissolving one dram of the carbonate, or as it is sometimes called, bicarbonate of soda, in six ounces or half a pint of sweetened peppermint, or spearmint, or ginger tea, and then in the usual way scattering in forty-five grains of tartaric acid, and drinking the mixture in a state of effervescence. In very costive habits an occasional enema of castor oil emulsion should likewise be employed. The conserve of spearmint, (see *Mint*) in doses of a tea spoonful, will often be found a pleasant and refreshing cordial.

When judiciously administered, the following mixture will often afford considerable relief:

Magnesia.
Carbonate of soda, each two drams.
Refined sugar, one ounce.

Rub the sugar and the magnesia and the soda together in a Wedgewood or glass mortar, and gradually add seven ounces of peppermint or spearmint water; and to this mixture add three drams of volatile or emetic spirit. The bottle should be well shaken when used, and half a wine glassful may be taken occasionally, when the heartburn is most troublesome. Where, however, the means recommended to be employed for the relief of the morning sickness, particularly the use of sodaic powders, heartburn will seldom require magnesia, or any other antacid, for its relief. It is scarcely credible, however, to what an extent the use of antacids may be carried to relieve the heartburn of pregnancy. Dr Dewees mentions having attended a lady with several children, who was in the constant habit of eating chalk during the whole term of pregnancy. She used it in such excessive quantities as almost rendered the bowels useless, frequently not having an evacuation for ten or twelve days, and then only procured by enemata, and the stools literally nothing but chalk. She calculated on three half pecks for each pregnancy. She became as white nearly as the substance itself, and it eventually destroyed her by deranging her stomach, so that it would retain nothing whatever. We are well aware too of the fact stated by Dr Dewees, that the magnesia does not always afford that relief which is expected; but we can aver, from an experience in some hundreds of cases, that, in combination, as in the above mixture, it seldom fails of affording relief. We have frequently employed magnesia suspended or mixed with a strong decoction of liquorice root, or a solution of the extract of liquorice, with the very best effects. Such, however, in some cases, is the prevalence of acid on the stomach, that none of the antacids are capable of overcoming it, though administered with a liberal and even a daring hand. In these, strange as it may appear, the administration of acids will afford relief, and by confining patients for days together to the use of lemon acid water, Dr Dewees, already quoted, has seen the greatest advantage, and we frequently use the elixir of vitriol with the best effects. Spirit of turpentine, in doses of twenty drops, three or four times a day, mixed with a little cold sweetened water, has likewise been successfully administered in the heartburn of pregnancy.

The carbonates of ammonia, of potash, and of soda, may all be tried in turn, as in some cases the one substance will insure relief, and in other cases another, putting to defiance all chemical theories on the subject; and where alkalies or antacids fail, demulcents, such as mucilage of gum Arabic, decoction of marsh mallow roots, but especially the strong decoction of liquorice, may be tried and taken in considerable quantities. A strong turpentine enema, by acting on the bowels, sometimes affords relief in this kind of heartburn when medicines taken into the stomach fail.

The nervous system, as already stated when enumerating the symptoms of pregnancy, is greatly influenced in many females during the period of utero-gestation. There are a variety, nay, not unfrequently a multitude of hysteric and nervous symptoms which are very annoying to the patient, and often to her family and friends, as well as to her medical advisers. Severe toothache is an affection of this sort, nor can relief be obtained by extraction.

As many young wives often feel anxious re-

specting the time of delivery, or in other words, the full time, we shall here furnish them with a kind of general rule by which this may always be ascertained.

Say that conception takes place on the first day of January, the full time of delivery will be the first of October; and if on the second of January, on the same day of October, and so on to the completion of these respective months. In February the same will hold in conceptions on that month, the first day answering to the first day of November, which is the full time for delivery, and so on to the 28th, except in leap years, when the time of delivery must be reckoned one day earlier after the intervention of the 29th of February; or the 29th of February will correspond with the first of March conception, and the full time of delivery with the 29th of November. The second of March conception will, therefore, appear on the 30th of November, and the third of March corresponds with the first of December.

In fixing, however, the time of conception in married life, in a female who has menstruated regularly, the time in general is fixed at half way between the period of the last menstruation, and the non-appearance of the next, although it often happens, and indeed most frequently, that conception takes place in a few days or immediately after menstruation, or the first or second day after marriage. There are, however, many exceptions. When, however, the intercourse of married persons has been irregular or interrupted, as in the case of mariners, travellers, and others, conception may be safely reckoned from the last period of sexual intercourse, although little ground for its having taken place were afforded till the cessation of the ordinary menstrual evacuation. Pregnancy has by some authors been represented as attended with many inconveniences, but this we deny. There are as many pleasurable circumstances in the life of a pregnant married female, as amply repay for any unpleasant sensations produced by pregnancy; nay, natural sensations can never be deemed as unpleasant, for pregnancy is not a state of disease, but a natural state, or rather one of those states and circumstances for which females were originally designed by the great Creator. It is not to be denied, however, that there are diseases or morbid and unpleasant affections connected with pregnancy, and peculiar to that period of female existence, just as there are peculiar feelings and diseases connected with every other stage of life; and that, therefore, hygienic and medical precepts are not only as necessary to be observed, but are even more incumbent than would be their observance or administration in any other period of female existence; because, in this case, the lives of two individuals are involved. Indeed, we know not a more interesting subject in nature than a pregnant female, or one for whose conservation and prosperity the civilized portion of mankind are more anxiously concerned. She has been compared to one of the most lovely objects in nature, if not the most lovely herself; and the man must be brutal indeed, who would not peril his life to preserve hers; for those who would either assault or injure her, even under the influence of considerable provocation, by common consent for ever forfeit their claims to a place in civilized and Christian society; and it is indeed matter of deep regret, that the annals of civilized life should ever have been stained with cases of such outrages, or those high grades of provocation that would, in other circumstances, have appeared to have called for retaliation.

Happily, however, domestic life, in these our native isles, afford us little ground for such remarks, as we are daily accustomed to look upon domestic life, and the legalized populating part of the community, as the most happy and enviable, whether they occupy the palace, the mansion-house, or the cottage. Where can we see a more lovely and fascinating picture than the neat, tiddy, industrious wife, but anxious mother, surrounded by four or five blooming children, the youngest of which is yet drawing its support from her breast, while its immediate predecessor is yet scarcely divested of jealousy towards the invaders of its rights to superior maternal and affectionate regards.

We have indulged in these remarks, lest any of our fair young friends would for a moment imagine, that the assumption of maternal duties were attended with those drawbacks and inconveniences which have no existence in fact, or even if they ever occur, may be very easily either prevented or entirely dissipated.

PRICKLY ASH, or *Xanthoxylum Fraxinum*. The bark of this tree has a slightly aromatic flavour, and a bitter acrid taste. It is diaphoretic and stimulant, and used with good effect in chronic rheumatism, in the form of powder or decoction. The former, in doses of from ten grains to a scruple, and the latter, when employed for the purpose of producing diaphoresis, is given warm in doses of from four to eight ounces, every three or four hours. The decoction is prepared by boiling an ounce of the bruised bark in two pints of water for fifteen minutes, and straining. American settlers will find it a valuable medicine.

PRIMROSE, or *Primela Vulgaris*. The common primrose is scarcely ever now employed in medicine, although the whole plant, including roots, leaves, and flowers, were formerly mixed with other herbs and leaves possessing sternutatory properties, and ground into herb-snuff. The *primula veris*, known by the different names of cowslip, paigil, or peagle, is sometimes used in domestic medicine. The

flowers, which are the part of the plant used, have a moderately strong and pleasant smell, and a somewhat roughish bitter taste. Vinous liquors, impregnated with their flavour by maceration or fermentation, and strong infusions of them drank as tea, are supposed to be mildly corroborant, antispasmodic, and anodyne. An infusion of three pounds of the fresh flowers in five pints of boiling water, is made in the shops into a syrup of a fine yellow colour, and agreeably impregnated with the flower of the cowslip. Its principal use, however, is to cover the taste and flavour of less disagreeable medicines, or to sweeten gargles, for which it is well calculated.

PROBANG. A useful surgical instrument, (see plate IX. figure 21.) which is formed of a small bit of whalebone about one foot or thirteen inches long, with a little ball of ivory or bone screwed on the end, or a small round bit of sponge, for dislodging substances that may stick in the gullet, such as bone, meat, &c. A probang is easily made of the rib of an old umbrella, or the point of a fishing rod. The ball or piece of sponge should be well secured, and moistened with oil or fresh butter, passed back into the throat, pushing gently against the substance, which will fall down into the stomach. Sometimes a thread is passed through the sponge, and passing up the side of the whalebone, and fastened to the end, forms a hitch by which to hook up the substance that may be sticking in the throat, when that mode can be effected. On an emergency, the rib of an umbrella, the bone of a lady's stays, or a small cane, may be used as a probang.

PROBE. A surgical instrument made of silver, gold, steel, wood, or whalebone, for probing wounds, ulcers, and sores. Before using a probe, it should be dipt in warm water, and lubricated with oil or lard.

PROCIDENTIA. A falling down of any part of the viscera; thus *a procidentia ani* means a falling down of the anus or rectum; a *procidentia uteri*, a falling down of the uterus or womb. A *procidentia* is to be distinguished from a *prolapsus*, which means a protrusion distinguished from a part falling down that is uncovered.

PROGNOSIS. The science of foretelling the event of a disease from particular symptoms; and in nothing is an experienced physician more distinguished from a novice than in this. The term prognostic being applied to those symptoms or effects of disease which may be foretold before they appear. Prognosis, or the prognosis, is therefore said to be favourable or unfavourable.

PRONATION is effected by a set of muscles called pronators, and signifies the act of turning the palm of the hand downwards, which is performed by rotating the radius or smallest bone of the fore arm on the ulna or largest bone of the fore arm, by means of the several pronator muscles. Those who wish to see the beautiful mechanism of the human hand sketched by the pen and pencil of a master, may consult Sir C. Bell's Bridgewater Treatise on the Human Hand. See plates of the *Bones* and *Muscles*.

PROPHYLACTIC. Prophylactics are all those means made use of for the preservation of the health; and may be embraced in temperance in eating, in drinking, in exercise, and in thinking, and a common sense system of clothing and defence from the extremes of heat and cold, with the occasional and judicious employment of simple and effective medicines.

PROSTATE GLAND. A glandular body of the form of a chestnut, situated at the neck of the bladder in the male, in front of the vesiculæ seminales, and surrounding commencement of the urethra or urinary canal; and hence this portion of the canal is termed, in anatomical language, the prostatic portion of the urethra. The prostate is subject to various diseases, particularly enlargement in old men. Chronic disease, ending in enlargement and hardening of the substance of the gland, is seldom if ever met with, except in persons above fifty. The symptoms are dull pain and weight in the perineum, straining on making water, and a frequent desire to do so, uneasiness at lower part of belly, and the urine is generally ropy and offensive to the smell; the fæces are found flattened when passed, owing to the pressure toward the gut; and in bad cases there is bloody urine, and many symptoms closely resembling those of stone in the bladder. In some cases the enlarged gland prevents the passage of urine, thus giving rise to complete retention, in which case it requires to be drawn off with a catheter. See *Catheterism*.

PROUD FLESH. A common expression used to denote the exuberant granulations which, during the cure of some sores, rise above the level of the skin, and present a fungous appearance. The best treatment is to touch them with some caustic, such as the sulphate of copper or nitrate of silver, or to sprinkle a little red precipitate powder on the surface, and apply a wet compress over it. See *Ulcers*.

PRUNELLA, or *Prunella Vulgaris*, is the pharmacopeial name of the plant called selfthal, sometimes likewise called brunella. This plant is now out of fashion with the faculty, but is still used in some parts of Britain as an astringent, in hemorrhages and fluxes; as in gargles, against aptha, and inflammation of the throat, and fauces; and where no more appropriate remedy is at hand, it may be employed for these latter purposes in the form of a strong decoction or infusion, sweetened with honey.

PRUNELLA, or *Sal Prunellæ*. The salt

so long known by this name is purified saltpetre, or nitre; in other words, the nitrate of potash cast into flat cakes or round balls, and is allowed to dissolve in the mouth; as a gargle, it is used for every purpose for which nitre in the ordinary form is employed, and from its purity, considered preferable for many uses.

PRUNES, OR PLUMS, or the *Prunum Gallicum*, or FRENCH PLUM, which is the *Prunus Domestica* of Linnæus. Prunes are cooling, emollient, and laxative, especially the French prunes. They enter into the composition of the confection of senna, (see *Senna*), and are frequently used in acidulated mucilaginous drinks, in fevers, such as barley waters, &c. They have a weak odour, and sweet acidulous taste. Prunes are used as an article of diet in the form of puddings, &c., and when eaten in moderation, and not destroyed by a combination of fats or rich sauces, they are certainly a useful fruit for the sedentary, and those of costive habits.

PRURIGO. A disagreeable and severe itching affecting the skin, either with or without an eruption. It occurs most frequently during the spring and summer, and also arises from certain states of the digestive organs, as when some articles of food which disagree with the patient's stomach have been eaten. The treatment consists in clearing the bowels by some gentle cooling aperient, or if there is much nausea, by giving an emetic in the first instance, and then the laxatives, and by the frequent use of the warm bath, or in obstinate cases, of the sulphuretted bath.

PRUSSIC ACID. See *Hydrocyanic Acid.*

PSOAS ABSCESS. See *Lumbar Abscess.*

PUBERTY. The vigour of youth, or that age at which the sexes become capable of procreating their species. It varies much in different climates, and even in individuals in the same country. In this country the usual term of puberty in both sexes, is from the fourteenth to the fifteenth year.

PUERPERAL, OR CHILD-BED FEVER. This disease commonly appears within from twenty-four hours to the third or fourth day after delivery. It commences with shiverings, sometimes preceded by vomiting of bilious matter, followed by pain in the belly, headache, frequency of the pulse, which generally ranges from 100 to 110 beats in the minute, and there is marked anxiety of the countenance. Soon after these symptoms, the belly becomes swollen and tense, and intolerant of pressure; and this is accompanied with an affection of the breathing, as if the patient were afraid of taking in a full inspiration.

Along with these symptoms, there is want of sleep, with somewhat flushed face, and sunk eyes. The tongue is white, loaded, and tremulous. The skin, in some cases, is of the ordinary temperature; but more frequently it is hot and dry. In some rare cases it is covered with a clammy sweat. There is generally thirst, but the patient is so dejected and unwilling to be disturbed, that she seldom asks for drink. The cleansings seldom continue to flow as usual. Sometimes an imperfect secretion of milk begins.

Within a few hours from the attack, spontaneous diarrhæa comes on, followed by relief of the symptoms, and especially by subsidence of the swelling of the belly; and there is a corresponding favourable change in the state of the breathing. But most frequently a relapse soon takes place, for the pain and swelling of the belly return, generally preceded by shivering, and followed by difficult breathing. Sometimes the pain shifts from the abdomen to the region of the chest, and then it is accompanied with harassing cough. The frequency of the pulse increases as the disease goes on. After the relapse it generally varies from 120 to 130 beats in the minute, and the tongue is dry and brown. The exhaustion of strength proceeds with great rapidity, so that in the majority of cases the patient sinks on the fourth, fifth, or sixth day of the attack, while vomiting of a dark coffee coloured fluid, (sometimes in large quantities) precedes for a few hours the fatal event.

The exciting cause of puerperal fever seems to be some peculiar miasm, as the disease appears as an epidemic at certain seasons. There is scarcely an acute disease for which a greater variety of infallible remedies has been published, and yet every candid practitioner must admit the distressing mortality of the disease. Perhaps, in many instances, those who have blazoned forth their success in the treatment of puerperal fever, have deceived themselves by mistaking the disease. It is impossible, on any other supposition, to account for the many remedies of such opposite qualities as have been proposed, and which have been severally asserted to be certain cures for this alarming malady.

Treatment. The best plan of treatment seems to be the local extraction of blood, or even general bleeding, if the patient has been previously healthy, at the very commencement; but this remedy should always be used with extreme caution, keeping in view the debility which follows. Emetics at the commencement are also sometimes useful, and the bowels should be acted on by doses of six grains of calomel combined with one grain of opium, and one of ipecacuanha, repeated every six hours, and followed the next morning by a table spoonful of castor oil. Sinapisms should be applied over the belly, or hot turpentine cloths, and the lower bowels cleared out by means of bland enemata. Warm fomentations should be applied to the

belly on removing the sinapisms, and the face should be sponged occasionally with lukewarm water and vinegar, and some diaphoretic mixture given every hour to produce perspiration; and this may be combined with from ten to fifteen drops of tincture of digitalis, three times in the course of the day, to diminish the frequency of the pulse; but this last remedy should never be given, except under the immediate direction of a medical man, if such aid can possibly be procured.

The diarrhæa which subsequently supervenes must be moderated by giving opiates, combined with some antacid, as the carbonate of potash or soda, and by fomenting the belly; and in the subsequent stages of the disease, the treatment must be the same as that recommended for typhus, viz., the exhibition of stimulants to support the strength, keeping the bowels gently open, and relieving the flatulent distention of the bowels by giving the strong camphorated mixture, valerian, &c. Should the patient ultimately get over the attack, she necessarily remains long in a debilitated state, and requires great attention. Her food must be nourishing, yet easy of digestion, for all the functions are impaired; and her strength must be recruited by the exhibition of tonic medicines, such as quinine combined with elixir of vitriol, and small quantities of wine.

PULSE. The stroke or beat of an artery. This is caused by the alternate dilatation and contraction of the vessel, caused by the action of the heart, which propels the blood through these vessels, and consequently corresponding with the action of the heart; and hence serving as an index, as it were, of the state of the circulation. The pulse is subject to many variations not consequent on disease. Thus in the infant during the first days, it ranges from 120 to 140, whilst in the healthy adult it ranges from sixty to eighty. The average, however, in the healthy adult, is seventy-two beats in the minute, getting gradually more languid in the aged. In fever the pulse varies from 100 to 140, but beyond this it can seldom be counted. When hard and wiry under the finger, it is generally indicative of inflammatory action; in apoplectic attacks it is full, slow, and incompressible; whilst in diseases of extreme debility, it is small and frequent. The pulse is also liable to variations from temporary excitement, such as running, mental emotion, violent exertions of any kind, and flatulence, or irritability of the stomach, which not unfrequently give rise to intermission of the beat. The medicines which act most evidently on the circulation are the various diffusible stimuli in exciting the heart's action; and hence they are given in cases of great exhaustion and debility, whilst those which depress the circulation, such as nauseants and antimonials, digitalis and tobacco, are used where we wish to decrease vascular excitement, or to cause temporary debility.

PUNCTURE. A wound inflicted with a sharp-pointed instrument, such as a needle, nail, the point of a pair of scissors, or a bayonet wound. Punctured wounds are dangerous according to their depth, and the parts injured, and are attended with more risk on account of effused fluids not getting a free exit from the bottom of the wound, as in an incised wound.

PURGATIVES. As we have ever considered this the most valuable class of medicines in the materia medica, and one with which almost every individual in civil society claims an acquaintance, none being of such benefit, either in the cure or prevention of disease, and none which such power is possessed over the human body as purgatives, we propose devoting a little more space to the consideration of their properties and effects than we have done on any of the other classes into which the materia medica is divided. Strange as it may appear to the non-professional reader, although physicians, from Hippocrates downwards to the present day, have devoted a considerable share of attention to the effects of purgatives, it was not till within the last thirty years that their true value was correctly estimated as curative agents, or their action, operation, and effects thoroughly understood. This may be accounted for by that natural attachment and confidence men have in the correctness of the opinions they have formed, especially if they have the sanction of antiquity and high authority. Another circumstance is, that the faculty are so apt to be led away by subtle and dangerous theories broached by men, that seem so pleasing to the imagination, so simple in their details, but which are founded on false and delusive principles. We must, however, look to nature, observe the laws which regulate her actions, and then by comparison of the healthy and diseased state, we shall by experience know how to regulate our treatment of disease; and it is thus by comparison, and the accumulation of facts, that we can ever arrive at important and correct conclusions. Medicine is a science of facts, and theory is not necessary to assist us much in practical points. We must leave (says an anonymous writer) theory to the elegant and inductive reasoner, leave him to range in that speculative field of medical philosophy, which has employed the powerful intellects of the most cultivated men for ages, and it still remains as open and as free for the mind of man to range as formerly.

Dr Paris remarks, that purgative medicines may act in three ways on the alimentary canal: 1st. By stimulating the muscular fibres of the intestines, whence their peristaltic motion is augmented, and the contents of the bowels quickly and completely discharged. 2d. By stimulating the exhalent vessels terminating in

the inner coat of the intestines, and the mouths of the excretory ducts of the mucous glands, by which an increased flow of serous fluids takes place from the former, and a more copious discharge of mucus from the latter, the effect of which is to render the fæcal matter thinner and more abundant. 3d. By stimulating the neighbouring viscera, as the liver and pancreas, so as to produce a more copious flow of their secretion into the intestines.

In a popular work like ours, such a view of the subject may appear superfluous. We are, however, of a different opinion, as doubtless many of our more intelligent readers will profit by this view of the subject, and be able to select the most appropriate purgatives for particular cases. Indeed, the divisions appear extremely judicious, and afford the attentive student at once a scientific and practical view of the subject. The first class of action, or the increased peristaltic motion of the intestines, is of the greatest importance in many forms of fever, for here the peristaltic action is diminished, and the necessity for their employment will be apparent. For the investigation of this interesting fact, we are indebted to our talented and now revered countryman, Dr James Hamilton of Edinburgh, whose public practice in the Infirmary of that city, and subsequent publications, proved the free and extended manner in which purgative medicines might not only be employed with safety, but with great advantage, in diseases in which a great majority of the medical profession deemed the administration of purgatives little better than that of poisons. In typhus fever, especially in the commencement of the disease, purgatives must be confessed to be of great importance by those who have seen the disease, and tried their effects; and Dr H., by his example and recorded opinions, has tended much to increase the practice, but we are old enough to recollect the time when the administration of a purgative in fever would have been a crime little short of murder, and not less than manslaughter. In this class of cases, the purgatives employed are preparations of jalap, senna, &c., in combination with calomel, and such auxiliaries as manna, and other mild laxatives.

The second division is that class of purgatives which produce a discharge of serous fluids from the exhalents; and they are extremely useful in inflammatory fever, dropsy, and other diseases of this kind. Saline purgatives, such as the Seidlitz and sodaic powders, the acetate of potash, sulphate of magnesia, and many vegetable purgatives, come under this head, of which elaterium is the most powerful.

The third kind of action is the production of the biliary and pancreatic secretions. This is effectually done by mercurials combined with drastic, and even tonic and mild purgatives, in moderate doses, such as the combination of small doses of calomel or the mercurial pill with the extract of colocynth, or the compound rhubarb pill, and various other forms amply exemplified in the course of this work. The vast importance of this purgative plan is seen in chronic affections of the liver, and of the mucous coat of the intestines, and in certain forms of dyspepsia or indigestion.

It is not, however, in one or two diseases that purgatives are useful. There are some, of course, in which a more favourable impression is exerted. In St Vitus's dance, for example, when all other medicines have been exhausted in vain to quell the force of the disease, or even to relieve the dreadful spasms and nervousness of the patient, purgatives, after a long continuance, reduce the disease, and improve and strengthen the constitution of the patient. In many forms of indigestion, where the biliary and pancreatic secretions are deficient, we have only, as we have already stated, to exhibit mercurial purgatives, followed up by other auxiliaries, such as the compound powder of columba and others, and we find the disease sometimes take a speedy, and at other times a slower departure. Purgative medicines are, however, of the greatest consequence in several other diseases, not only from their powerful beneficial action, but from the nature of the malady. Among the first of these, we may refer to *Mania*, whether in the milder forms of mental alienation, or more confirmed madness, names so painful to the feelings of all where reason is perverted by its overpowering influence, and the faculties of man are laid dormant; or in an equally melancholy species of madness, delirium tremens, it must be equally obvious, that the most matured skill and experience are required to soothe and mould down the troubled mind to a state of placidity and quiet. The reason is obvious, for in the great majority of these cases, some irritation of the secretory system is the prominent cause; and even in some confirmed cases, this state of the bowels obtain. Let it be recollected that we are not here alluding to those cases of mania in which diseases of the brain or its membranes are the cause, but the sudden and often unaccountable occurrence of mania in persons of supposed sound intellect and health. A writer in a medical periodical mentions a case in point. 'A young lady whose bowels were naturally costive being suddenly seized with mania, her menses had suddenly ceased, her bowels were confined, bleeding was practised, calomel was given, and several other medicines, but without in the slightest degree relieving the bowels; and in fact every expedient was tried to open them, and it was not until croton oil was exhibited, two drops in a dose, that the bowels were opened; and another dose having been given, and free purging moved, which was kept up for about three days, when the patient's faculties returned

to their natural state.' This case is a very satisfactory illustration of the effects of purgatives on the sudden appearance of mania in persons not predisposed to the disease; and although we do not recommend active purgatives in general in delirium tremens, where the disease is produced by what (for want of a better term) we would call soaking, or drinking from four to six quarts of porter or strong ale in twenty hours, or by tippling and drinking a glass of gin or whiskey every two or three hours, rather than by an act of intoxication produced by drinking a large quantum in one or two hours, and keeping up this fit for two or more days, we are sure that in the soaking or tippling delirium tremens, purgatives, especially in the form we have above named, are the most effectual remedy that can be employed. Indeed, there appears to be a great sympathy existing between the alimentary canal and the head, and we cannot wonder at the many cases of temporary mania which occur, and which, by continued judicious employment of purgatives, will generally be removed, while, if neglected, the disease may become confirmed.

In all chronic diseases, purgatives may be used with considerable success, but they must be continued in many cases for a long period, and require the greatest attention not only to the nature of the purgative employed, but to its effects on the stools or alvine secretions. Before, however, we conclude our observations on this fruitful subject, we may be allowed to offer a few hints to physic takers, or the consumers of antibilious and purgative pills, &c. From the numerous advertisements of antibilious, family, and vegetable pills, and the immense revenue derived by government by their sale of stamps at the rate of 1½d. per shilling, it is evident that no inconsiderable portion of the community are in the habit of using these nostrums, and there are not a few who have particular recipes of their own. We have seen the injury inflicted by the practice of daily swallowing doses of these purgatives in a vast variety of instances. They are not in general employed by the sick, but by hypochondriacs, who are moving about in the open air, or by the nervous and hysterical, confined to their apartments, by an apprehension that out-door exercise would shorten their semi-miserable existence.

Medicine is only required by the diseased, not by those in health; and if the sedentary and studious begin to feel the effects of constipation, a change of diet, for example, a greater quantity of such vegetables as boiled carrots, turnips, parsnips, apples, and various kinds of fruit and culinary vegetables, may produce the desired alteration. The use of 'pease brose,' or if our readers choose to dignify it with the name of 'peas-pudding,' we mean fine pease flour quickly mixed with boiling water, gradually adding the water while the stirring about is continued, till a mass is formed of the uniform consistence of an ordinary pudding. A little butter may be added to the flour before the water is introduced, if agreeable, and if it is not deemed sufficiently savoury to eat it, (or in Scotch, to sup it,) with sweet milk, it may be browned in an oven or before the fire, and eaten with a small portion of pickled pork. This dish has a wonderful effect on the bowels of the naturally constipated. If, however, purgative medicines are occasionally used by those in ordinary health, the compound infusion of senna, the infusion of roses with Epsom salts, the colocynth, or some other of the simple officinal preparations, or our own favourite composition, the compound powder of columba, in doses of a dram in a wineglass of water night and morning, will answer better than loading the stomach with quack nostrums.

PURPURA. A disease in which the surface of the body is covered with specks or patches of a dark purple or livid colour, and the eruption is accompanied with great debility, and frequently a degree of fever. The specks or patches are the result of extravasation from the minute vessels beneath the cuticle, and resemble the petechiæ seen in bad typhus fever, or the spots in cases of sea scurvy. The worst form of this disease is the purpura hæmorrhagica, or bleeding purpura, in which the blood is often effused in large quantities from the surface, giving rise to great prostration of strength, and generally terminating fatally. This disease is frequently accompanied by symptoms of local inflammation and general fever, and requires free bleeding at the commencement; but in the later periods of the progress of the disease, we must trust principally to the exhibition of gentle laxatives, small doses of the mineral acids, frequently repeated, combined with decoction of Peruvian bark, and when typhoid symptoms appear, by supporting the powers of the constitution by means of wine and other stimuli.

PURULENT OPHTHALMIA OF INFANTS. This disease exists to an extent in cities and great towns, especially in London, that would not be credited by those who have not witnessed it. Of late years it has attracted more general attention, chiefly owing to the establishment of provincial infirmaries for the treatment of the diseases of the eye; and although its nature and treatment is now better understood than formerly, it still continues to commit serious outrages on the organs of vision among all classes of society, but more especially among the infants of the working poor. That eminent surgeon, G. J. Guthrie, when professor of surgery to the Royal College of Surgeons of London, in a course of lectures delivered before that college in 1832, says, 'I

generally see about twenty children every year at the Ophthalmic Hospital, who have lost their eyes, and these eyes are lost through the ignorance either of the mother, the nurse, the doctor, or all three, and might have been saved by very simple treatment.' Mr Guthrie considers it always to arise from leucorrhæa, and adds, 'I never dispute with the ladies whether it is leucorrhæa or gonorrhæa. It appears that, as the child passes into the world, it comes with its eyes partly open, and some of the discharge gets in.' However much we may differ with Mr Guthrie on the cause, we certainly agree with him on the mode of cure; and we therefore quote his very graphic description of the disease, in his ninth lecture before the college in the year already quoted, viz., 1832:—

'In two or three days after birth inflammation sets in, and the mother's milk is thought to be the best thing that can be applied; the eyelids swell and are discoloured, and there is a great discharge.' This is Mr G.'s description, but perhaps he would have rendered the description more correct, had he stated that the eyes of the infant became closed, the eyelid swelled up till they assumed somewhat the appearance of two sparrow eggs, and thick purulent matter, of the consistence of cream, issues from between the eyelids. This is a disease, if taken at its commencement, that any mild astringent will cure, even a solution of alum, in the proportions of half a dram to eight ounces of water. To make the matter more plain; the fluid secreted at first is thin and watery, and generally becomes purulent about the fifth or sixth day. The eyelids are considerably swollen, and it is very difficult to open them; there is, however, a way of doing it, and it is this. The child's head should be placed between the knees of the operator, father, mother, or friend, and wiping dry the eye of the infant, the operator having rubbed his finger dry, will draw on the upper eyelid until he sees its edge, then passing the end of the nail of the forefinger under the edge, he will draw back the eyelid under what has been called the superciliary ridge, which can be readily done in infants, and he may then draw down the lower eyelid; for if he attempts it before, he will not be able to open the eye at all, as the contraction at the angles will prevent him. Having done this, the operator must squirt in the lotion; but Mr Guthrie and many others do not depend on that alone, but having cleaned out the discharge, apply the ointment of the nitrate of silver, or what is sometimes now known as the black ointment, with a camel hair brush all over the insides of the eyelids. The child roars and screams, but it is soon relieved and appears easier. If it is a strong child, and there is great inflammation, a leech, or even two, may be applied immediately below each eye. It is rarely that any other treatment except opening the bowels is required, and very rarely the scarification of the inside of the eyelids, or the application of blisters, which in infants, especially male infants, are always dangerous. At the end of a few days the ointment may be changed for the solution of the nitrate of silver, four grains to the ounce. If the disease is allowed to go on unchecked, the eye is generally destroyed; should the cornea, however, only be muddy, we may expect to effect a cure. If the eyes are not disorganised, in thirty-eight or thirty-nine cases out of forty they may be cured by the above plan. The cornea of an infant will recover its transparency, when that of an adult, affected to the same extent, will not. Even when ulceration has taken place, we may hope to arrest it before it eats through the various laminæ, which are much more loosely united than in the adult. The cornea, however, sloughs largely, and the disease, when by accident it is communicated to the nurse, proves a very destructive purulent inflammation. Mr Guthrie states a case in which both eyes of the nurse were lost before the cornea of the child from whom she caught it were affected. It was this case that led Mr G. to adopt the treatment by the nitrate of silver in ointment; the most vigorous measures having appeared, indeed, were proved to be of no use whatever in even arresting its progress after the inflammation had fairly commenced, or the white of the eye become distended with a florid fluid, and elevated above the margin of the transparent cornea, or the cornea being in what is called a chemosed state.

The greatest caution is necessary to be exercised by those nursing or taking charge of infants: in this disease the smallest portion of the matter discharged from the eyes will inoculate the eyes of a healthy person, and as stated above, will even deprive them of sight. The hands should be carefully washed after dressing the eyes, and in fine, every precaution used to prevent infection of so very serious a disease to adults as well as to infants. See *Eye*.

PUSTULE. An elevation of the cuticle with an inflamed base containing pus. The best example, and the most formidable of all pustular eruptions, is the small-pox; the scalled head, and itch, at least certain kinds of itch, are also examples of pustular eruptions.

PUTREFACTION. The spontaneous decomposition of animal or vegetable substances, attended with fœtor. Certain diseases are regarded as putrid where the discharges have an unnatural appearance and fœtor, where there is great debility, and where foul ulcers take place, and spread rapidly. The treatment, in such cases, consists in giving the mineral acids, infusion of Peruvian bark, and other remedies regarded as antiseptic, applying yeast or charcoal poultices to the ulcers, giving wine and

nourishment, and paying great attention to cleanliness and ventilation.

As it is of great importance in some cases to prevent, or at least retard, the putrefaction of animal substances intended for provisions, we may briefly state that the object is best obtained, first, by means of extreme cold, as by packing the substance in ice, by drying it so as to deprive it of part of its moisture, and by salting, smoking, and pickling with vinegar, rubbing it with muriatic acid, and by first partially cooking the article, and then packing it in air-tight jars, which last is the usual method employed in preserving meat for long voyages.

PUS. The fluid found in abscesses. It is effused from the blood-vessels during the suppurative process. Pus is distinguished into healthy or good pus, and ill formed pus. Healthy pus is of the colour and consistence of cream, smooth when rubbed between the fingers, and heavier than, and insoluble in water, and has no fœtor. Badly formed, or as it used to be termed, ill digested pus, is thin, and mixed with blood and flakey matter, and has a fœtid odour. The pus found in scrofulous abscesses is thick and curdy. It is very difficult to distinguish between pus mucus in some cases, at least between pus and that fluid effused after inflammation of mucous surfaces, as in gonorrhæa, bronchites, &c., as it has all the principal distinguishing characters of pus, and is now denominated muco-purulent matter.

PUTRID SORE THROAT. See *Scarlet Fever*.

PYLORUS. The narrow extremity of the stomach, which communicates with the duodenum or commencement of the small intestines. See *Alimentary Canal, Digestion*, &c.

PYROLIGNEOUS ACID, OR WOOD VINEGAR. The acid obtained by distillation from wood in its concentrated form. It is very powerful. It is used in preparing aromatic vinegar, and is also used to impart a smoked flavour to salted provisions, such as hams, fish, &c., to save the time and expense necessary for that process. When used as vinegar, it must be diluted with six times the quantity of water.

Q

QUACK MEDICINES, OR PATENT MEDICINES. These terms are employed to designate such medicines as are prepared by private or secret recipes; and puffed forth by the venders as infallible remedies in certain diseases, and not a few of them as certain cures for every disease which can be named. There is perhaps no subject which has been more fully exposed than the absurd pretensions of these remedies, yet such is the credulity of the public even amongst classes of society where we would expect better things, and notwithstanding that we hear frequently of deaths resulting from the use of such remedies, when given in improper cases; that there are hundreds of individuals who are realizing immense wealth by the sale of such nostrums.

No one who gives the slightest attention to medical subjects can fail to perceive how rare it is to find any one remedy suitable to the cases of two individuals labouring under even the same disease. Take, for example, the case of fever. In one case perhaps we need to bleed and purge the patient, whilst in the others there may be such symptoms of debility as may require us to give wine and other stimulants to support his strength. Indeed, in no two cases do we find the symptoms exactly alike, for in all constitutions there are some peculiarities; and from this fact alone may be seen how utterly worthless and fallacious are the promises held out in the truly absurd advertisements daily addressed to the fears and credulity of the public. But not only are the expectations of the sick disappointed, but the remedies are frequently dangerous in themselves, from the nature of their ingredients. Opium, for example, well denominated by Dr Paris the 'quack's sheet anchor,' forms too frequently the basis of such remedies; for by giving temporary relief from pain, it encourages the patient to further trial of the medicine, and so conduces to the advantage of the quack. The various remedies for syphilis, eruptions, &c., have almost always corrosive sublimate or some other strong preparation of mercury for their active principle; whilst arsenic forms all the infallible anti-cancerous remedies. Surely it needs no reasoning to show how dangerous must be the indiscriminate use of such powerful agents, or how unlikely it is that parties who have never had the slightest medical education, should be able to cure by one remedy, diseases which have baffled the combined skill and experience of the whole medical profession.

QUARANTINE. The period during which

persons arriving in ships from unhealthy stations, or from ports where the plague is raging, are prohibited from all intercourse with those on shore, except with persons specially appointed for the enforcement of the quarantine laws. This period generally extends to forty days, and hence the derivation of the term quarantine. Although the quarantine laws frequently give rise to considerable loss and inconvenience to individuals, still these cases can never be put in competition with the public safety, to which the existing quarantine laws so materially conduce. See *Contagion*.

QUARTAN AGUE. A species of ague in which the fit recurs every fourth day. See *Ague*.

QUASSIA WOOD, or *Quassia Excelsa*. Although the wood of the root is the part directed to be employed by the colleges, this rule is seldom observed, and the branches and even the trunk of the tree is used in practice. It has a smooth brittle bark, the wood is small, the bud white, but by exposure becomes yellowish; and has no odour, but an intense bitter taste. Its bitter principle has been denominated *quassia*. Floors and furniture made of quassia wood retain their bitterness for many years; and from its effects on flies and insects, &c., there is no doubt it might be usefully employed in constructing chests and drawers for keeping woollen and other clothes, so apt to be destroyed by moths, especially in warm climates. It appears that quassia wood acts upon most animals as a narcotic poison, and an infusion or decoction is very generally employed as fly poison, but rabbits, dogs, and other stronger animals are affected with it. Quassia wood, or as it is generally sold in the shops in the form of raspings, chips, or shavings, is never used in substance, but most frequently employed in the form of infusion; one dram of the chips or raspings being infused in a pint of boiling water for two hours, and strained, and is given in doses of one or two fluid ounces twice or thrice a-day. The tincture is prepared by digesting half an ounce of the raspings in a pint of proof spirits, (whiskey or brandy) for a few days, and then filtering or straining; and this, which is a convenient medicine for keeping, is taken in doses of from half a dram to two drams in a wineglass of water. The extract may be taken made into a pill with powder of ginger, in doses of eight or ten grains night and morning, or taken an hour before dinner, to produce an appetite.

The diseases in which the preparations of quassia are used, are dyspepsia or indigestion, intermittent fever, gout, hysteria, and in all those cases in which bitters are indicated. In the usual medicinal doses and forms, quassia operates as a stomachic and tonic, promoting the appetite, and assisting the digestive functions. It is devoid of all irritant, stimulant, and astringent properties, being more powerful than gentian as a bitter, but in other respects analogous in its operations to that root, being, as Dr Cullen says, 'a pure and simple bitter,' while he admits it to be an excellent substance, capable of doing all that any pure simple bitter can do. In bilious affections, where purgatives are required, a better formula cannot be used than an ounce of Epsom salts dissolved in half a pint of the infusion of quassia, to which may be added thirty drops of elixir of vitriol; one-fourth of this mixture to be taken every three or four hours. Where it is advisable to combine bitters with chalybeates, the muriated or ammoniated tincture of iron, or the wine of iron, may be taken in a wineglass of the infusion; the quassia having an advantage over other bitter infusions, that the ferruginous salts can be added to it without producing any alteration in its colour. From the effect of quassia on the lower animals as a narcotic poison, it is interesting to know whether it has any similar operation with respect to man. 'I have,' says Mr Pereira in his lectures on the materia medica, 'employed and seen others administer it most extensively, yet I never had grounds for suspecting any effect of the kind alluded to.' Our own experience is in accordance with that of Mr P., yet some have observed effects which certainly seem to favour the notion, that quassia possesses a specific influence over the cerebro-spinal system. 'In females endowed with extreme susceptibility, I have seen,' says Barbier,' 'involuntary movements of the muscles, hasty movements of the arms and legs, produced by the aqueous infusion of quassia. Graves says, that the continued use of quassia brings on amblyopia or dimness of sight; and Ratcher refers to some observations of Kurtz that the long-continued use of quassia by man brings on amaurosis, and the same author mentions that complete paralysis of the hind extremities of a dog affected with the mange, was brought on by washing the ulcers with decoction of quassia. In seven hours, however, it disappeared. Doubtless paralysis and other nervous affections will be brought on by a long-continued use of any bitter vegetable tonic, but as a bitter medicine we consider quassia as free from objection as any of that class.

There is yet another species of *simaruba*, viz., the *simaruba officinalis*, or the *simaruba quassia*, the bark of which is employed in medicine. It grows in Jamaica, where the tree is known by the names of bitter or mountain damson, or the slave-wood. This simaruba or quassia bark of the shops, is obtained from the roots. It is rough, scaly, and warted; the inside, when fresh, is a full yellow, but when dried paler. It has but little smell; the taste is bitter, but not disagreeable. It is esteemed in the West Indies in dysenteries and other

fluxes, as restoring tone to the intestines, allaying their spasmodic motions, promoting the secretions by urine and perspiration, and removing lowness of spirits, attending those diseases. It also, in some cases, disposes the patient to sleep, takes off the gripes and tenismus, and changes the stools to their natural colour and consistence. In full or large doses, it is very apt to irritate the alimentary canal, and thereby to cause vomiting and purging; and from this circumstance, Rochefort has classed it among emetics, and Bichat proposed it as a substitute for ipecacuanha. It is used in the form of powder, in doses of from ten to twenty grains, as a tonic, in cinnamon water as an emetic, from one to two or three scruples; but as it is difficult to powder, it is more frequently given in infusion, which is prepared by macerating half a dram or even a dram of the bruised bark in half a pint of boiling water, for two hours in a covered vessel, and straining. The dose is from one to two fluid ounces twice or thrice a day, and in larger doses it proves emetic.

It may be proper to remark, that owing to the cheapness of *quassia excelsa*, or Jamaica quassia, that it was employed as a substitute in porter-brewing for hops, and that in consequence, a heavy duty has been imposed, and a heavy fine exacted from those who are found using it in brewing, and it is two hundred per cent. dearer than it was some years ago.

QUICKSILVER. The common name for the metal called mercury. See *Mercury*.

QUININE, or *Quinia*. A substance first discovered in the yellow Peruvian bark, of which it is the active principle. Quinia is a white powdery substance, only sparingly soluble and watery, but completely soluble in warm alcohol. It unites with acids, and forms salts with them, the most important of which is the sulphate of quinine, or quinine, as it is generally called. This salt is now used in medicine in all cases where bark was formerly prescribed, and it seems to be possessed of all the virtues of Peruvian bark, without its inconveniences; for owing to the small doses in which it is exhibited, it does not produce the nausea which follows the large doses of bark given in substance, and eight grains of quinine is reckoned equal in power to one ounce of barks. The usual dose is one or two grains thrice a day, combined with a few drops of diluted sulphuric acid, or in the form of pill, combined with extract of gentian or chamomile. It is always advisable to commence its use with small doses, and watch its effects, for it sometimes produces a degree of feverishness and headache, and frequently constipation, if given in large doses. In such cases the dose should be reduced, and the quinine combined with some laxative, such as aloes or compound extract of colocynth, and the patient should take a few drops of elixir of vitriol in water after swallowing the pill. If the feverish symptoms continue, the medicine should be given up as improper. Indeed, like most other active remedies, it is often abused by being given indiscriminately in all cases of apparent debility, without any reference to the cause of such weakness; and in cases where there is a considerable degree of subacute inflammation, as for example in cases of chronic coughs, chronic gastritis, &c.

QUINSY. The English name for sore throat. See *Throat*.

QUOTIDIAN. A species of ague in which the fit returns every day. See *Ague*.

R

RADISH, or *Raphanus Sativus*. This well known esculent root is cultivated in almost every kitchen garden. It has an acrid pungent taste, and is generally esteemed as a pleasant stimulating condiment; but it is an article of diet which should be avoided by most dyspeptics.

RANULA. This is the medical term for a tumour which sometimes forms under the tongue, and sometimes increases to such a size as to impede mastication and deglutition, and gives rise to a peculiar croaking sound of the voice, and some cases are on record where the breathing was greatly embarrassed; and in one case the swelling increased so rapidly whilst the patient was waiting in the surgeon's consulting room, that he fell down in a state of asphyxia, and was only saved by the prompt assistance of the surgeon. The disease consists in obstruction and consequent distention of the conjoined ducts of the submaxillary and sublingual salivary glands, and at first generally consists of inspissated mucus and saliva, but after a time the fluid becomes of a thick glairy appearance, or sometimes earthy concretions form, giving rise to a solid hard tumour. When the swelling is fluid, it is frequently pellucid, but in other cases the cyst becomes thick and hard like leather. The treatment, if the disease is noticed

early, consists in dilating the duct by introducing small bougies of leaden wire from time to time, so as gradually to enlarge the opening; or where the natural orifice cannot be found, to make a small incision, and then introduce the bougies as formerly directed.

In the more advanced stages of the disease, when the tumour has become large, the swelling is to be transfixed with a curve needle called a tenaculum, and an oval portion of the cyst cut out, and when the contents have been fully evacuated, the cavity is to be gently touched with a finely pointed pencil of caustic potass, followed by small pieces of oiled lint.

Abscess sometimes occurs in the same situation, and when chronic, it requires considerable experience to discriminate between it and the diseases we have just been speaking of; but whenever it is discovered, it should be freely opened, and without delay, for if the abscess be allowed to burst spontaneously, troublesome sinuses into the mouth or opening below the chin are almost sure to be the result.

RAPHE. A term used in anatomy to denote a line having the appearance of a raised seam, marking the junction between symmetrical parts, as the raphé of the perineum, scrotum, &c.

RASH signifies a superficial eruption occurring in patches of various forms and extent, diffused over the surface of the body, and leaving between them parts of the skin of its natural colour. The eruption in measles, nettle rash, scarlet fever, &c., offer good examples of the meaning of the term.

RASPBERRY. This well known fruit is held in great estimation as a preserve, in the form of jam, and also combined with vinegar and sugar, forming what is called raspberry vinegar. In either of these forms, when diluted with water, it forms an agreeable beverage in febrile complaints, and is also an excellent though expensive addition to the sea-stores, as an anti-scorbutic.

RECLINATION. One of the various methods of couching in cases of cataract. In reclination, the cataract needle is introduced about two lines posterior to the junction of the cornea with the sclerotic passed behind the iris, and in front of the opaque lens, which is then by a motion of the hand turned over or reclined, so that the position of its surfaces are changed; that which was formerly anterior is now superior; the superior posterior, and the inferior anterior; in other words, instead of being placed upright, it is laid flat, so as not to interrupt the passage of the rays of light.

RED OR CORN POPPY, or *Papaver Rheus*. The red petals or flowers of the corn poppy, which is indigenous in Britain, and abounds in some corn fields, is the part of the plant used in medicine. Its capsules and seeds have the same properties, although in a lesser degree, of those of the white poppy, and where they can be collected in sufficient quantity, may be dried and preserved for fomentations, enemas, &c. The red petals are, however, the only part ordered by the colleges.

Syrup of Red Poppy.

Fresh petals or flowers of red poppy, four ounces.
Boiling water, five ounces.
Refined sugar, nine ounces.

To the water heated in a water bath, add the petals, gradually stirring occasionally, next remove the vessel, and macerate for twelve hours then express the liquor, defecate, and add the sugar, so as to form a syrup.

As this syrup is chiefly, we may add solely, valuable on account of its colour, it is necessary to attend to the preceding directions. (See *Syrup.*) It is an excellent addition to anodyne draughts and other medicines requiring sweetening and a fine red colour, which, by rendering it more attractive, will be more readily swallowed by a child, or even by some adults.

REDUCTION, in chemistry, means a process also termed *revivification*, by which a substance is reduced or restored to its natural state. It is generally applied to restoration of metallic oxides to the metallic state. Reduction, in surgery, means the manual operation by means of which displaced parts are restored to their natural position, as the reduction of dislocation, fracture, hernia, &c.

REFRIGERANTS. Medicines which tend to diminish the heat of the body. Refrigerants are of two kinds. 1st. Those applied externally to the surface of the body; 2d. Those which are given internally. The former class consists of the various evaporating and cooling lotions, such as vinegar and alcohol, with water, solutions of sugar of lead, sulphuric ether, the cold bath, iced water, and ice itself, either alone, or combined with salt as a frigorific mixture; but these last produce intense cold, and are only to be used under professional directions. The second class includes all remedies which reduce the heat of the body by acting on the circulation, as the vegetable acids, sulphur, nitrate of potash, cream of tartar, and the various saline purgatives; and to this class may be added bloodletting and diaphoretics, both of which, by reducing the febrile heat of the body, may be reckoned refrigerant.

REGIMEN. A rule of conduct prescribed for a patient regarding his diet, exercise, and habits. The various rules necessary to be attended to by invalids and convalescents, will be found detailed under the different diseases treated of throughout this work.

REMITTENT FEVER. This fever differs from ague or intermittent, inasmuch as although distinct remissions or alleviations occur, there is yet no interval in which there is a complete absence of fever, as in intermittent.

Remittent fever is not of very frequent occurrence in this country, being chiefly prevalent in warm climates, where it frequently prevails as an epidemic during certain seasons, as immediately after the rainy season in India. The symptoms of remittent fever vary according to the constitution of the patient, the circumstances in which he is placed, and the type of the prevailing epidemic; that is to say, that in certain epidemics, the fever will be attended with some peculiarities which do not accompany it at other times; thus, in one epidemic the head symptoms will be the most severe, whilst in a similar fever during another season, hepatic or pulmonary symptoms will prevail. Again, as regards individuals, their peculiarities must be attended to; thus, in a person of nervous temperament, or in one accustomed to mental exertion, the head symptoms will generally be severe, whilst in another person, subject to constipation in the bowels, or hepatic derangements, or of intemperate habits, severe bilious or gastro-enteritic symptoms will be the most urgent. Remittent fever accompanied with symptoms of biliary derangement, a yellow state of the skin, and rapidly terminating in typhoid symptoms, constitutes the yellow fever so fatal in warm climates; but before treating of that violent form of the disease, we shall give a sketch of the ordinary bilious remittent as occurs in this country. The patient generally suffers for some days previous to the attack, from what appear to be symptoms of indigestion, such as flatulence, foul taste of mouth, constipation of the bowels, and disturbed sleep, and loss of appetite. These symptoms are succeeded by languor and lassitude, and alternate chills and flushes of heat; the skin becomes hot and dry, the pulse quick, the foul taste in the mouth increases, there is pain in right side, or at the pit of the stomach, with constant nausea, pains in the loins and headache, the urine is high coloured and scanty, the febrile symptoms generally increase towards evening, the headache and nausea gradually become intense, accompanied by urgent thirst and constant retching, free vomiting of bilious matter at length takes place, accompanied by perspiration, and then an alleviation or remission, as it is termed, takes place, gradually the pulse becomes less frequent, the headache and nausea are relieved, and the patient is more tranquil. The relief experienced is so great, as often to induce the patient and his friends to imagine that it is merely a violent bilious attack, which is gradually subsiding; but they are soon undeceived, for an exacerbation of the fever occurs after the remission has lasted for some hours. This exacerbation in general commences towards night, and then all the symptoms formerly mentioned recur with increased violence, frequently the nausea and pain in right side become excessive, accompanied with constant retching and difficulty of breathing, or in other words, hepatitis or inflammation of the liver is present. If the patient is of a nervous temperament, there is frequently raving during sleep, and even delirium.

The treatment of the form of remittent fever which we have just described, depends greatly on the constitution of the individual patient. If he be young and healthy, or if there be present any symptoms of local inflammation or congestion, as indicated by fixed pain, constant retching, tenderness of the abdomen, or by violent headache and raving, depletion either local or general, or both combined, is indicated. This is more particularly the case where symptoms of hepatitis are present. In cases where the headache is severe, the application of leeches to the temples, and cold cloths to the head, combined with free purgation, will be found in general sufficient to relieve it. The bowels should be freely acted on by some mercurial purgative. Perhaps the following is one of the best, as acting on the skin at the same time:

Take of Calomel, five grains.
True James's powder, four grains.
Extract of gentian as much as necessary to form it into a pill.

The above pill should be followed in four hours by a black draught; and if a warm bath can be conveniently got, the patient should be placed in it immediately after taking the pill. If the nausea is very urgent, an emetic should be given previous to exhibiting any other medicine internally, after relieving the head symptoms by leeching; this should be followed by an effervescing draught, and then the purgative medicines administered. The diet should be light and scanty. Thirst is best alleviated by small quantities of soda water, with lemon juice. The bowels having been freely acted on at first, should be kept open by gentle laxatives, and a degree of moisture on the skin kept up by some gentle diaphoretic mixture. When the patient is recovering, the diet may be generally rendered more nourishing, and in most cases tonics and small quantities of wine are requisite.

We shall now conclude our remarks on this disease by giving an extract from the work of the late Dr Mackintosh, descriptive of the severe forms of bilious remittent fever, as it occurs in warm climates: 'The most frequent form of the disease is that in which, after the rigor which may be more or less severe, there quickly succeed violent reaction, heat of skin, and determination to the head, announced by the following well marked symptoms: flushed face, conjunctiva injected, the eyes look heavy, and often feel burning, and the expression of the countenance leads an experienced person to judge correctly of the severity of the attack. The respiration is hurried and laborious, often attended by cough, and the patient occasionally

sighs, and seems to gasp for air. The head is thrown about from side to side, and the patient is excessively restless from anguish; severe darting pains in the head are sometimes complained of, as also in the small of the back, and down the thighs; there is sometimes a burning pain in the pit of the stomach, exquisite tenderness in the right hypochondrium, unquenchable thirst, with incessant retching of every thing taken into the stomach; the fluid ejected is mixed sometimes with a great deal of bile, and accompanied with a discharge of flatus, belched up with great violence. The pulse is various even in people similar in age, constitution, strength, and habits; but in plethoric subjects, who are seized soon after their arrival in warm climates, the pulse is quick, full, and bounding for a few hours at least after re-action is fully developed. In some it is quick, and not strong; in others it is not particularly quick, and it is sometimes very irregular. The tongue is furred, perhaps red, but soon becomes parched and dark coloured. These symptoms indicate the first stage of this fever. An anxious and distressed countenance, redness and sense of heat in the eyes, flushed face, intense headache, quick and laborious respiration, burning pain in the region of the stomach, with great thirst and excessive vomiting, announce a formidable disease; but in my opinion not so formidable and hopeless as another variety, in which there is some insensibility from the first, with coma, weak and oppressed pulse, and cold extremities.

'The duration of the first stage is very uncertain. In severe cases it lasts from ten to twelve hours, but in slighter cases it may go on for four or five days.

'In the second stage the skin and eyes acquire a yellow tinge, the heat subsides, the head is confused, or delirium appears, the breathing becomes quicker and more anxious, the eyes begin to look glazed, the pulse sinks, the retchings are rather more violent, the matter vomited begins to look dark, and if the person be sensible he desponds; he occasionally falls asleep, but instantly awakes in great terror; sometimes he starts out of bed furiously delirious, but falls down in a tremor on the floor; the tongue is always parched, and in general covered with a dark fur; and the skin becomes clammy. In this stage as well as in the first, there are often cramps in the belly and legs, which distress the patient much. The duration of this stage is also uncertain.

'The first stage sometimes terminates by a remission of the more urgent symptoms, when the patient and his friends indulge the fond hope that he may recover; indeed these remissions often occur, but the deception is soon manifested by the recurrence of all the symptoms in an aggravated degree. In the second stage there are remissions also, particularly towards its termination, when a hope of recovery is again entertained; for although the vomiting be more frequent, and more copious, all uneasiness generally subsides, but the pulse sinks, becomes irregular and intermits; nothing is retained on the stomach, the matter vomited is of dark colour, resembling coffee-grounds, and is termed "black vomit." The breathing becomes more laborious; the tongue has perhaps lost its fur, it is shrunk, dry, and red; the eyes are sunk and glazed; the whole features are sharpened as death approaches, the limbs become cold as marble; there is troublesome hiccup, which perhaps has existed throughout the whole of the second stage. Hemorrhage sometimes takes place from the different parts of the body; the abdomen is frequently as tense as a drum; and death steals on slowly, or takes place suddenly.

'Another variety of this disease, frequently met with in very sickly seasons, is that in which a person, after passing several restless nights, is able to go through some of his duties for the first two or three mornings, but this costs him a very great effort. His weakness increases, the bowels are out of order and constipated, or after having been so for some time he may now complain of looseness, he feels alternate chills and heats, but the least exposure makes him complain of cold; his stomach now begins to get irritable, he takes to bed, his senses become rather obscured, his breathing is affected in no other way than being short, and he cannot, even when he makes an effort, distend his lungs freely; he complains most of oppression at the procordia: sometimes a remission of most of these symptoms takes place; and his skin, which was never hot, and his pulse, are now felt to be nearly natural: but in a few hours the symptoms become aggravated; the patient is more inclined to be comatose than restless, he complains now perhaps of violent pain in some region of the belly; the breathing is oppressed, the extremities cold and damp, while the surface of the belly and chest are hotter than natural, hiccup comes on, the coldness steals onwards to the trunk, the pulse sinks, the countenance looks ghastly, and the patient's fate is quickly sealed.'

As regards the treatment of this formidable disease, great difference of opinion exists, some employ large blood-lettings, whilst others fearing debility and looking on the disease as a putrid fever, stimulate from the first, whilst a third class trust almost entirely to cold affusion and mercurial purgatives. The best plan is to trust to no particular set of remedies however vaunted, but to treat the disease according to general principles and the peculiar symptoms of the particular patient. Where the patient has been previously healthy, and if he is seen early in the fever, free blood-letting followed by mercurial

medicines, combined with diaphoretics, and the use of the warm bath will always be proper ; the cold affusion, before the fever has fully formed, has been found so efficacious that it always merits an early trial, and even at later periods of the disease has often the effect of alleviating the suffering of the patient. After the patient has been once freely bled, and fixed local pain, as in the region of the liver or head, still continue or recur, it is seldom adviseable to have recourse to general bleeding, and therefore in such cases local depletion by means of leeches, and that followed by counter-irritation as by blisters, &c. is the safer plan. Purgatives are indispensably necessary, and require to be exhibited freely ; the best are mercurial purgatives (as calomel in form of pills, as being less liable, to be vomited,) followed by saline laxative draughts, and enemata repeated so as to produce at least five or six copious stools ; the thorough evacuation of the bowels during the first hours of the fever cannot be sufficiently insisted on. The hair should be cut short and cold applied, to ward off or relieve the head symptoms: and if necessary leeches applied as formerly recommended. If these means fail in checking the disease in the onset there is but little hope, and the case must then be treated by watching the symptoms and relieving them as they appear. In the latter stages of the disease, and in some cases even from its commencement, the exhibition of stimulants is absolutely necessary; perhaps the best is brandy, combined with small quantities of soda water or some other effervescing draught, which assists in allaying in a degree the irritability of the intestine. Ammonia, musk, large quantities of wine or brandy, have been given in the last stage, and although in some instances with success, yet as may be readily imagined, the case is then generally hopeless.

Infantile Remittent. This is a disease in children, the symptoms of which are very similar to those described in the article on *Tabes Mesenterica*, or wasting of the body, accompanied by enlargement of the mesenteric glands, for which disease as well as for worms it is frequently mistaken. Infantile remittent is generally caused by improper food, giving rise to irritation of the bowels, or by a subacute form of inflammation and ulceration of the mucous lining of the intestinal canal. The child is feverish at a certain period of the day, loathes solid food, and there is urgent thirst ; the tongue is generally foul, sometimes red at the tip and edges ; there is dull pain on pressing the belly, and the legs are generally kept bent up towards the belly when the child is in bed ; the stools are always of unnatural appearance, although the state varies in different children; in some the excrement is black or dark brown, whilst in others white, green, or curdled, slimy, and mixed with blood. The child is constantly picking its nose or lips, the latter being always covered with a brown crust.

The treatment indicated is to improve the secretions by regulating the diet, and by exhibition of alterative laxatives, and by relieving the irritability of the mucous membrane. If the case is seen early, that is to say, before the child's strength is wasted, leeches to the belly, followed by gentle counter-irritation by means of some stimulating embrocation, will be found very useful. With regard to laxatives, the best is the chalk and mercury, in doses of from two to five grains combined, with two of rhubarb and three of aromatic powder, and followed by small doses of castor oil, one powder should be given every morning, and the castor oil every second day if required; if the skin is hot and dry, an antimonial diaphoretic mixture should be exhibited every two or three hours for a day or two, and the warm bath used perhaps every second or third day. The diet should consist of thin well boiled arrow root, or tapioca made with a very small quantity of milk ; in some cases weak beef tea may be allowed, but not generally ; in the latter stages, both beef tea and small quantities of wine are often necessary. In some cases it is necessary to substitute calomel and rhubarb instead of the milder preparation of the chalk and mercury.

RENNET. This useful liquid is prepared from the stomach of calves, and as whey is an excellent drink in various diseases, it is proper that the sick nurse and medical attendant should know how to prepare it, and the more so that in cities and great towns, especially in London, where it is sold by confectioners at an enormous price. On this and other grounds, it is therefore necessary it should be prepared at home, and for this reason rennet must be procured. There are many receipts for the preparation of rennet, but the following will be found one of the best. A calf's stomach bag or maw is washed clean and salted thoroughly inside and out, in which it lies two or three days. It is then hung up to drain for other two or three days and then re-salted, put into a jar and covered with paper pricked with pin holes. It may be used in a few days, but it improves by keeping; when prepared for use a handfull of sweet brier leaves, of dog-rose leaves, and of bramble leaves, as also three or four handfulls of salt, are boiled in a gallon of water for a quarter of an hour, and when quite cold, the salted maw is added, as also a lemon stuck round with a quarter of an ounce of cloves. The salt must be in sufficient quantity, so that some may always remain at the bottom undissolved, and the steep must be scummed as often as is necessary. In Essex they practise another plan, which is to take the fourth or last ventricle of a calf, commonly called the bag, and opening it, they take out the curd,

picking it well of hairs, which are mixed plentifully with it; then they wash it and put it into the bag again with a good quantity of salt, and keep it in a well glazed earthen vessel till they use it as follows. If they first make cheese in the beginning of the spring, they boil salt and water together till the water is saturated with salt, and will dissolve no more, and steep the bag, having been first prepared, as before, in it; but when they have made cheese (by rennet, previously prepared), they steep it altogether in whey, well salted, by boiling salt in it, and sometimes, to give it a high flavour, they boil spices with it. The aromatics are matter of fancy, and may either be used or omitted; some only prepare a quart of rennet from one stomach, and others a gallon, but the stronger the rennet, the less will be required to the milk.

There is a simple way of coagulating milk in some parts of Ireland, to produce what is called two milk whey, which is by heating a pint of sour butter milk, scalding hot, and pouring it into a quart of sweet milk, fresh from the cow; the whey may then be drained off. There are several plants that will coagulate milk, such as the yellow laches, bed straw, and it is commonly used in some parts of Cheshire, and likewise in Tuscany, and especially in Parmesa; and many people esteem the cheese and whey made with it as better than that by rennet, but this is a mere matter of taste. To prepare rennet whey, place a quart of milk in a bason, surrounded with boiling water, till the milk is of a blood heat, or a little warmer, and then mix with it, a teaspoonful of rennet; remove it from the warm water, and the milk will soon be completely coagulated; then break down the curd, and pass the whey through a strainer, which will leave the curd behind. This whey is always rendered somewhat whitish, by a very small and much-divided portion of the caseous part, but as a sick diet drink, this does no injury. The whey, however, if it is wished, may be clarified. Put in a basin the white of an egg, a wine glassful of the whey, and four or five grains of tartaric acid, in powder; whisk these all well together with a bunch of peeled twigs or egg whisk, and add the remainder of the whey, place the mixture over the fire, till it begins to boil. The tartaric acid completes the coagulation of the white part of the milk, which remains; the white of the egg, as it becomes hot, coagulates and envelopes the caseous part. When the whey is clear, pour it off; some filter it through blotting paper; but this is unnecessary, as it is easy keeping out that part which is united with the albumen of the egg.

Warm sweet milk whey is an excellent liquid aliment in consumptive cases, in hepatic or liver affections, and in nervous indigestions. (See *Milk* and *Whey*.) Those who only require rennet in small quantities will very readily obtain it at the butchers who are in the habit of killing calves, and it is even sometimes to be met with in the shops of retail chemists. Other substitutes than those we have named for rennet will be found under their respective heads.

RESINS; a solid inflammable substance, of vegetable origin, soluble in alcohol and in oils, but not in water. The resins are capable of uniting with the bases. These combinations have been termed *resinates*. Resins, properly so called, differ from balsams; the latter being resinous bodies, either solid or liquid, containing benzoic acid. The Germans make a distinction into natural balsams and hard resins; the former including those which, in consequence of containing a certain proportion of volatile oil, are either liquid or of a soft consistence.

The principal resins, with the sources from which they are obtained, are the following:

Balsam of Capivi,	*Copaifera Officinalis.*
——— Mecca,	*Amyris Gileadensis.*
——— Peru,	*Myroxylon Peruifera.*
——— Tolu,	*Toluifera Balsamum.*
Copal,	*Rhus Copallinum.* / *Elæ Carp. Copaliferus.*
* Turpentine,	*Pinus Abies.* / ——— *Sylvestris.*
Benzoin,	*Styrax Benzoin.*
Sandarach,	*Thuja Articulata.*
Mastic,	*Pistacia Lentiscus.*
Dammara,	*Pinus Dammara.*
Anime,	*Hymenea Courbaril.*
Dragon's Blood,	*Pierocarpus Draco.*
Elemi,	*Amyris Elemifera.*
Guaiacum,	*Guaiacum Officinale.*
Storax,	*Styrax Officinalis.*
Tahamahaca,	*Callophyll. Inophyllium.* / *Fagara Octandra.*
Resin of Lac,	*Ficus Indica.*

RESOLUTION is the most favourable termination of inflammations. Resolution takes place when, in consequence of the increased action in the larger arterial trunks being diminished, the affected capillaries receive a smaller supply of blood, and transmit it more readily into the corresponding veins, and when they are thereby less dilated, and consequently enabled to resume their contractile power. The circulation in the part becomes again natural, and the circulating fluid also resumes its healthy properties; the redness and sensation of throbbing are gone. From the non-dilatation of the blood vessels, the nervous system is not preternaturally stimulated, and thereby the increased sensibility is done away with. If the vessels have had time to relieve themselves by effusion of part of their contents, the effused particles are absorbed, and the swelling disappears. In short, when inflammation terminates in resolution, the part is left in the same state in which it was previous to the supervention of the

* The turpentine which flows from the trunks of the pine and fir after they are cut, is filtered through straw and twigs in order to obtain the resin. Tar is procured by afterwards burning the straw and twigs; pitch by burning billets of the wood of those trees which are too old to yield turpentine; and lamp-black is obtained by receiving the smoke in a wooden chamber, lined with painted cloths. Burgundy pitch is said to be nothing else than resin melted, and placed in contact with vinegar. *Hoblyn.*

attack. It is not an instantaneous process, but gradual in its completion.

Again, it not unfrequently happens, when inflammation has occurred on the surface, and continued for a short period, that it spontaneously disappears, and does not again return; the action is then said to terminate in *delitescence*, and of course this is always a favourable occurrence; but if the inflammation, after having suddenly disappeared, attacks another part at a distance from that first affected, the change is termed *metastasis*. If the inflammation leaves an internal viscus, and appears on the surface of the body, the circumstance is favourable; but if it leaves the latter to attack the former, the result is highly dangerous. *Liston*

RESPIRATION; the alternate inspiration and expiration of atmospheric air, for the purpose of bringing it into contact with the blood, and exchanging the hydrogen and carbon with which it is changed for oxygen. This function is therefore closely connected with that of the circulation of the blood. The organs and mechanism by which this wonderful function is carried on, vary considerably in the different classes of animals. In the mammalia, birds, and reptiles, the organ of respiration is the lungs; in fish, the gills; in most insects, the tracheæ; and in the lower classes of animals, different parts of the system. The air, being brought into contact with the blood, is decomposed, its oxygen is united with the blood, and its nitrogen is returned by expiration, unchanged, with an additional quantity of carbonic acid gas. A part of the oxygen of the inhaled air is united in the lungs with the free hydrogen, and forms water, which is emitted in the form of vapour, visible at 40° Fahr. Another part of the oxygen unites with the superfluous carbon in the blood, and forms the carbonic acid gas, which passes off with the watery vapour. It is evident from observation, that oxygen gas is necessary to animal life. As to its manner of operating in the body after inspiration, opinions differ. Upon respiration depends also animal heat, which is greater, at least in the mammalia and in birds, than that of the surrounding element.

Dr Crawford was the first who advanced a theory to account for the production of animal heat, and the uniform distribution of it over the whole body. In examining the capacity of venous and arterial blood, he found that there was a considerable difference between them, the former being 892, and the latter 1030, compared to water as 1000. He therefore supposed, that by the union of the carbon of the former with the oxygen of the air, by which carbonic acid is generated, heat is disengaged; but as by this action the venous blood is instantly arterialized, the capacity is increased, so that the heat, instead of becoming sensible, is absorbed, and thus, although there is actually the production of it in the lungs, their temperature does not rise. The arterial blood being carried through the circulating system, arrives at the extreme vessels, where it is gradually converted again into venous, by which its capacity must be diminished and heat evolved; and as this change goes on slowly, it is equally distributed, and the temperature thus kept always nearly the same. The venous blood, loaded with carbon, is in this state brought again to the lungs to be arterialized, and give rise to the evolution of heat.

This opinion of Crawford, provided the facts on which it is founded be correct, will satisfactorily account for the production of heat and its uniform distribution over the body. Subsequent experimenters, however, do not allow that there is such a difference in the capacity of venous and arterial blood as stated by him; indeed, according to Dr Davy, there is little or none.

Though it is generally admitted that the source of animal heat is dependent on the changes produced on the blood by respiration, and during its passage through the circulating system, it has been attempted to prove that these have no share whatever in its production, but that it is to be ascribed to nervous influence. Sir B. Brodie, who advocates this opinion, asserts that, by keeping up artificial respiration in animals recently killed, and by which the usual changes were induced in the lungs, oxygen being absorbed and carbonic acid evolved, the venous being at the same time changed to arterial blood, the temperature fell, proving, as he supposes, that there was no generation of heat. These experiments, however, if maturely viewed, will be found to strengthen rather than invalidate the opinion, that the production of heat is dependent on respiration. In those, for example, where artificial respiration was kept up, the lungs were constantly exposed to a renewal of cold air, which must have cooled the animal not merely by direct abstraction of caloric, but also by causing evaporation from the surface of the lungs; and as the temperature did not fall below that of the animals in which artificial respiration was not performed, we are warranted in concluding that heat was disengaged (*Fyfe*). It must not be supposed, however, that the whole of the heat by which the temperature of animals is kept above that of the surrounding medium, is evolved by the changes produced by respiration; it is also, in a great measure, dependent on mollecular movement, or, in other words, on the constant movements and changes which are taking place in minute particles composing the animal body.

The mechanical part of the function of respi-

ration is effected by the action of the ribs and diaphragm. In the natural state the ribs are inclined downwards, and when this series of movable hoops is raised by the action of the muscles, the cavity of the chest is enlarged. The descent of the diaphragm by its contraction increases this effect, and the air therefore rushes in to fill up the vacant space; the ribs then descend, and the diaphragm rises, and the air is necessarily driven out in consequence of the resulting contraction of the chest. About twenty respirations take place in a minute, and from thirty to forty cubic inches of air are inhaled at each inspiration. A man consumes about a gallon of air in the same time.

RESUSCITATION; this term signifies the reviving of persons apparently dead. Under the articles on *Drowning*, *Carbonic Acid Gas*, &c., we have already given directions as regards the best means to be employed for resuscitating persons apparently dead from these causes; but as the subject is highly important to the domestic practitioner, as he may be called on to act in the absence of professional assistance, for these cases admit of no delay in the application of remedial measures, we shall, under the present head, shortly recapitulate the principal remedies to be used and the rules to be attended to. One of the first steps to be taken is to loose any article of the dress which may cause constriction over neck, chest, or belly; the mouth should then be cleared of frothy mucus, and artificial respiration resorted to. This is done as follows: The nozzle of a pair of bellows is to be introduced into one nostril, the other nostril and mouth being kept closed, and gentle inflation is to be commenced, whilst an assistant presses on the gullet to prevent the air entering the stomach. When the breast is a little raised by the inflation, the mouth and nostrils are then left free, and an assistant uses gentle pressure on the ribs so as to imitate natural expiration; then the whole process is to be repeated, and this should be continued for at least fifteen minutes, or until there are symptoms of revival in the patient. During the time that this is performing, other assistants should remove the wet clothes from the patient, if it be a case of drowning, and warm bricks, or bottles of warm water, should be placed to the feet and sides, and strong sinapisms to the pit of the stomach and calf of the legs, whilst an enema, consisting of a pint of warm water and spirits, or a turpentine enema, should be administered by the bowels. Means may be used to cause sneezing or coughing; but on no account should tobacco enemata, or tobacco in any form, be administered, as it is more likely, from its depressing qualities, to destroy than revive the sufferer. Hartshorn and other stimuli may be rubbed over the body. If the case be one of asphyxia from hanging, or the effect of carbonic acid gas, bleeding from the jugular vein should be had recourse to, in addition to the above means, particularly if the veins of the head and neck are turgid, as is frequently seen in such cases. See *Drowning*, *Carbonic Acid Gas*, *Hanging*, &c.

RETE MUCOSUM. This structure appears at first as a glairy exudation between the true skin and the cuticle, adhering to both, particularly to the former. Malpighi (after whom it has been called rete Malpighi, corpus mucosum, rete glutinosum, Malpighianum), stated it to consist of soft fibres, so arranged as to form a net-work. It is more and more distinct in proportion as the skin is of a darker hue, so that it is very easily demonstrated in the dark races. When a blister has been applied to the skin of a negro, if it be not very stimulating, the cuticle alone will be raised in about twelve hours. After this is detached, the exposed surface appears covered with a dark coating; but if the blister has been very active, another layer, of a dark colour, comes away with it. This is the rete mucosum, which gives to the different races of mankind their various shades of colour; for the other two layers of the tegument are pale and colourless, as we see when their separation is effected by maceration after death, or by vesicating the living surface.

The nature of the stratum which is thus interposed between the true skin and the cuticle, has given rise to much discussion. Nerves cannot be traced into it, nor has any process of injection shown blood-vessels within it in a healthy state. It appears to be a semi-fluid deposit or secretion, rather than an organized substance. Some persons, however, consider it to be a partially organized cellular tissue, containing in it areola, a dark substance, resembling the dark colouring matter of the eye (*pigmentum nigrum*). In the white races the rete not only loses all colour, but becomes so thin that it is difficult to demonstrate it; indeed, some eminent anatomists, Bichat, Chaussier, and Dr Gordon, from these circumstances, denied its existence altogether. But we generally find, on attentive examination, a viscid semi-fluid stratum occupying the situation of the rete, which, however, is soft and glairy, and most probably a secretion produced by the vascular surface of the true skin, or by a special apparatus. M. Breschet is disposed, from various considerations, to take the rete mucosum and the cuticle together, and to regard them as strata of corneous structure deposited on the true skin. But although neither nerves or blood-vessels have hitherto been traced to this structure, still vessels of another kind are recognized by M. Breschet himself as existing in it, and which he considers analogous to lymphatics, and to constitute an inhalent apparatus. Now, as nothing of this kind exists in the epi-

dermis or cuticle, we may consider this circumstance, together with its scale-like texture and difference of colour, sufficient to distinguish it from the rete mucosum. *Quain.*

RETINA. The internal or nervous coat of the eye is placed within the choroid or dark vascular coat of the eyeball, the inner surface of which it lines, extending from the entrance of the optic nerve, of which it appears to be an expansion, forward to about one line of the lens. The retina, by dissection, can be shown, to consist of three layers, the external or serous, the middle or proper, nervous, and the internal or vascular. The middle, or nervous coat, is of a pale gray colour, and pulpy to the feel, and is best seen if the choroid coat is removed from the humour of the eye, and these placed in spirits, under a globular glass, the spirits rendering the retina opaque, and so rendering it very evident.

RETORT. Retorts are vessels employed for many distillations, and most frequently for those which require a degree of heat above that of boiling water. This vessel is a kind of bottle, with a long neck so bent, that it makes with the belly of the retort an angle of about sixty degrees. From this form they have probably been named retorts. The most capacious part of the retort is called its belly. Its upper part is called the arch or roof of the retort, and the bent part its neck.

Retorts differ in form and materials. Their bellies are generally round; some of them are oblong, and shaped like a cucurbit; these are called English retorts. They are preferable for the distillation of matters which are subject to swell, and to pass into the receiver before they are decomposed. A retort which has a little hole pierced in its roof, is called a tubulated retort. This hole must be capable of being exactly closed with a stopper of proper materials. Retorts of this kind are employed in distillations where some matter must be introduced into the retort after the receiver is joined to it.

If the retort be well made, the above-mentioned inclination of its neck must be most favourable to distillation. When the neck is too much inclined, the receiver cannot be conveniently suited to it, and is also by this form brought too near the furnace; if the neck be too little inclined, the vapours or liquors which rise in distillation can scarcely flow into the receiver from want of sufficient descent, and only circulate in the belly of the retort. Retorts, when too narrow in their bending, are very faulty; this form must be an impediment to distillation; the passage, therefore, from the belly to the neck of the retort, must be free and wide, gradually diminishing to the extremity of the neck of the retort.

Retorts of different materials are used in chemical operations, of common glass, crystal-glass, stone-ware, and iron. Retorts of glass are used for all operations which require a less heat than is sufficient for their fusion. Earthen retorts are required where great heat is necessary, as in the preparation of phosphorus. Iron retorts are not much used, as they can only serve for the distillation of substances which cannot act upon this metal; and as these substances are few in number, they can seldom be employed but for the distillation of mercury and animal matters.

REVULSION; the occurrence of a secondary disease in a part remote from the seat of the primary disorder. Thus, if on suddenly repelling an eruption from the surface, we have a secondary disease take place in any internal organ, we say there is a revulsion. See *Metastasis* and *Resolution*.

RHEUMATISM. A high medical authority defines rheumatism a disease dependent upon external, and for the most part, evident causes; attended with pain of the joints, following the tract of the muscles, and affecting the knees and larger joints rather than the joints of the feet and hands, which pain is increased by exterior heat.

The usual sequela, or successor, of the above described disease, which is that of acute rheumatism, is *chronic rheumatism*, which consists in a feeling as of a violent strain, or subluxation, as if a joint was partially out of its place, with pains in the joints or muscles, especially when using them; more or less wandering and relieved by the warmth of bed, or any other external heat; weakness, rigidity, and often coldness in the joints; but there is no pyrexia, or fever, or external swelling. To be less technical, however, rheumatism is a disease in which the two states of acute and chronic are particularly well marked: the chronic is generally the consequence or the sequel of the acute, as already stated, but there are many instances in which a less degree of the exciting cause produces the chronic variety; yet it is difficult to distinguish a slight degree of acute rheumatism from the chronic kind, for we frequently cannot decide to which variety these more local affections should be referred. The chronic differs from the acute in the absence of general fever, in the inflammation of the parts possessing less urgent symptoms, being characterised almost entirely by pain and stiffness, by the swelling, if any, being permanent, and by the complaint being much less liable to metastasis, or the translation of the disease from one place to another, which is a common characteristic of the acute disease. There is a farther diagnostic circumstance, that while the acute rheumatism is generally aggravated by external warmth, the chronic, on the contrary, is certainly relieved by it. Chronic rheumatism, says Dr Bostock, is one of those affections that

have the property of indicating, in a way which we are not able to explain, the future changes of the weather, so that patients of this description can predict these changes before any signs of them have been manifested by our usual meteorological instruments. Many animals possess this power in their healthy state, and in these cases it is generally referred to the operation of instinct, as it is always found to be connected with some circumstances essentially necessary to their immediate existence, or their future welfare.

Rheumatism, in common with other inflammatory affections, is held to be most prevalent during the winter; but this, although true in the main, is much less remarkable than with respect to most inflammatory diseases. Dr Haygarth, who gave considerable attention to the subject, estimates the proportion of cases occurring in summer, to those occurring in winter, as five to seven; and Dr Macleod, one of the latest writers on the subject, observes, that the attacks during warm weather are frequently quite as severe as those which take place at more inclement seasons of the year; and our own experience has taught us the justice of these observations. It would appear, in fact, that the cause of acute rheumatism is not to be sought for so much in any abstract degree of cold, as in *atmospheric vicissitude;* so that exposure to the cool air of an evening which follows a hot day, is often sufficient to produce an attack of acute rheumatism, particularly if the atmosphere has become charged with moisture. It has been supposed that other agents, besides cold and moisture, come into operation, and that malaria gives noxious energy to the influence of the air; but, when we reflect that rheumatism occurs under almost every variety of situation, often, nay most frequently, where there is no reason to suppose any malaria exists, and when we see it immediately following the application of cold and moisture, without the concurrence of any other apparent circumstance, it appears quite unnecessary to have recourse to other causes, the very existence of which, in many cases, are entirely hypothetical or imaginary. Having, in the preceding history of the disease, alluded to *atmospherical vicissitudes* as one of the most common causes of rheumatism, we now address ourselves to the consideration of the other circumstances and causes connected with the occurrence of the disease, especially in its acute state; the chronic being most generally, if not always, the sequel of the other. A peculiar state of the individual, constitutional predisposition, or hereditary peculiarities, are said to be among the requisites for the productions of the disease. These, however, are not peculiar to rheumatism, but are common in most other diseases assuming regular and characteristic features. Doubtless, an individual who has descended of rheumatic parents, and more especially one who has already suffered from the disease, is more liable to its attacks. Chomel states, as the result of specific investigation on this point, that, of a large number of patients treated by him, at *La Charité*, for rheumatism, not less than one half were the offspring of rheumatic parents. Having once suffered from the disease affords but too great a probability of suffering from it again; and it will be rarely found that an individual, who has had a rheumatic attack once, lives many years, or even months, without experiencing its recurrence; so that many suffer from the acute form of the disease several times in the course of a few years, nay, frequently two or three, or even oftentimes, in one year; while, with respect to the chronic, there are some subjects in whom the disease is scarcely ever entirely absent. In its acute form, this disease is more prevalent among men than women; and we think the difference, in this respect, is not greater than the circumstance of the latter being less exposed to its exciting causes is sufficient to account for the circumstance. The greatest number of cases of rheumatic fever occur at the early period of adult age: probably two-thirds of the patients are between fifteen and thirty; but it is also met with at a much earlier period of life. The liability to the acute form diminishes as we advance in life, and it seldom occurs after fifty, although there is a considerable difference as to the frequency of different kinds of rheumatism, at different periods of life.

With respect to the *seat of this painful disease*, it is supposed not to be in the muscular fibre itself, but in the membranous parts connected with it; an opinion which is derived partly from the sensation of pain being referred, not to the belly or middle part of the muscle, but to the joints, where the muscles terminate in tendons, and to joints, being the principal seat of the external inflammation. The changes of structure which occasionally occur after some attacks of the disease, are always found among these parts; consisting of thickening of the tendons, the adhesion of the membranous parts to each other, or the deposition of a fluid into the interstices or openings in the neighbourhood of the joints. The kind of tissue alluded to, occupies a very large extent of surface in the human body, the tendons being continuous with the periosteum, or fibrous covering of the bones; indeed, the same kind of tissue envelopes not only the cranium, but the brain, the heart, and many of the glands.

Without attempting to trace all the varieties of rheumatism described by nosologists, lecturers, and systematic writers, we shall direct our attention to rheumatic fever.

Acute rheumatism is generally ushered in by feverishness, or what, in other words, is

termed a *rheumatic fever*. This then becomes something like a marked disease; there are febrile symptoms, and wandering pains, which, in a shorter or longer period, sometimes of twelve hours, and at other times, in twenty-four or thirty-six hours, become localized. To be plain, in some cases the wandering pains take up their residence in the lower, and at other times in the upper extremities. Sometimes the knee, or ankle, or even the hip joint; and at other times, the wrist, the elbow joint, or the shoulder. Upon the whole, the most frequent order is for the foot and ankle, and then the knee, of one or both extremities, to be affected, next the hands and wrists, and after them, in point of frequency, the shoulders. The elbow is not so often the place of attack, as either the knees or the shoulders; and the hip is implicated more rarely than any other of the large joints. It has been supposed, that the relative frequency of attack depended upon the comparative degree of exposure, and that those joints which are most covered suffer least. This explanation, Dr Macleod thinks, may serve to account for the hip joint so often escaping; but it will not explain why the elbow should suffer less than the shoulder. Such, however, has been the fact in a very large majority of the cases of acute rheumatism, which have fallen under the observation of Dr Macleod and others. We now trace the *progressive symptoms* of rheumatic fever, and the first thing that arrests our attention is, the very severe pain and constitutional disturbance, which is often very acute, before the parts affected swell, or even where no tumefaction or swelling at all occurs. In acute cases, some swelling is usually perceived about the joints most complained of, in the space of twenty-four hours from the attack. In such cases the parts become tense, the hollows about the joints are more or less obliterated; the skin is hot, red, and sometimes shining; occasionally there is considerable swelling, without redness; in some instances a blush of redness, or redness in patches with little swelling, but generally the degrees of redness and tumefaction bear a relation to each other. Indeed, the part in many cases, has the appearance of a phegmonous inflammation or bealing, and we have known it mistaken for such; but one in which neither pointing (Scotch, coming to a head) nor fluctuation can be perceived. One of the most remarkable characters of this inflammation, already alluded to in our previous history of the disease, is the rapidity with which it changes its seat in external parts. In a few days, or within twenty-four hours or less, the pain diminishes or wholly subsides in the part first attacked, and simultaneously comes on in another; which then proceeds through changes somewhat similar to those above described, to become relieved from suffering in its turn; while the inflammation either returns to its original seat, or, more commonly, invades some joint which had hitherto escaped. The pain and swelling subside at one and the same time, so that, within a few hours, the part which was most tense may become perfectly flaccid, and have but a slight degree of soft edematous fullness remaining. In such cases the skin becomes shrivelled and wrinkled, but soon accommodates itself to the subadjacent parts; the cuticle very rarely peeling off, even when the swelling and cutaneous inflammation were most severe. The pain and inflammation appear to have a strong predisposition, in the majority of cases, to the joints we have mentioned, and their vicinity, although in some instances the loins or back of the neck, and the parts between the shoulders, become painful, but in a less degree, and here the disease, when most severe, is usually unaccompanied by tumefaction or discernable redness. All the parts we have described as subject to acute rheumatism, embrace *ligaments* as one of their principal constituents; and it is probable that they, and the other white dense fibrous structures, as we have already hinted, are the primary seats of the disease. It is clear, however, that the inflammation is not absolutely confined to them, as we see it in the skin, which is often so red, and with so much effusion under it, that it is by experience alone that we become aware that suppuration is not impending; and we have oftener than once seen a rheumatic swelling of a joint poulticed, in the hope that suppuration would take place. Little permanent change remains about the joint after repeated attacks, in which respect there is a great difference between this and the gouty form of rheumatism, or that form in which the synovial or capsular ligaments are involved. Under ordinary circumstances, no injury is done to the joint; in rheumatic fever a degree of stiffness, indeed, may remain for a time, but it seldom fails to wear off very speedily, and the parts to all appearance become perfectly restored. A slight degree of thickening may perhaps remain about the back of the hand, and dorsum of the foot, more frequently than elsewhere; from a certain portion of the effused lymph having then become organised, as in the process of a wound healing by adhesive inflammation.

With respect to the *treatment* of *acute rheumatism*, or what has been called rheumatic fever, an appellation which we have adopted, but which we do not consider altogether correct; there has and does exist a variety of opinions. The leading indications noticed by systematic writers, are to remove the general fever, and secondly, to relieve the local affection; although it may be remarked, that to a certain degree these indications are necessarily connected together. The fact is, that the treatment of acute rheumatism has been, nay is, very unsettled: there is the bleeding and purging plan, the

forced sweating plan, the stimulant plan, that is, with bark and guiacum &c., the colchicum plan, the calomel and opium, and these variously combined.

The bleeding and purging, or pure antiphlogistic plan. From ten to twenty years ago, this and the diaphoretic plan were in full vogue, especially in Scotland; and Dr J. Hope says, that he saw it there carried to its maximum, in the Edinburgh infirmary, during a residence of two years in that institution; and he admits many cases were promptly and effectually cured, even annihilated at once, by the antiphlogistic plan; but in many others active bleeding was carried to the very last ounce that could be drawn, yet the enemy clung to the joints with a chronic grasp, and proceeded triumphant in his crippling career. Add the pale emaciated frame and the slow convalescence, sometimes of two or three months' duration, and too often the permanently shattered constitution; add above all, the inflammation of the heart not prevented, nay, it is a trite remark made by some observers, and by none more strongly than by Dr Alison, that large and repeated bleedings in the beginning of rheumatism, he is convinced, *increase* the risk of this metastasis. Dr Macleod has, however, met this argument, by saying that it is only in the worst cases, and consequently those in which migration to the heart is most *likely* to occur, that copious bleeding has been employed. Still the fact remains that inflammation of the heart is not *prevented*, and preservation is the great desideratum. We have seen repeated bleedings, purging, and other antiphlogistic measures, prove effectual in some cases, especially of stout young men, full, but not intemperate livers, in which this plan succeeded; but we scarcely ever saw them regain their wonted health, much less a healthy hue in their countenance.

The forced sweating plan. This was long, and still is, a favourite plan of treatment with many in the lower ranks of life, especially in some quarters of Ireland; and we have known patients surrounded or incased in warm bricks till, as Dr Hope sententiously remarks, they were stewed and parboiled. Dr Gregory, the great advocate of this plan, premised venesection and purging till the pulse was lowered to 100; but with these appliances and means to boot, viz. parboiling in perspirations or sweat, for four, six, or eight weeks, and what was gained? A wan attenuated frame, chronic pains, and a confirmed susceptibility of rheumatic attacks on the slightest variations of temperature. This plan, too, we have known to succeed: but the most successful application that we ever knew was, that of a patient surrounded with layers of hot bricks before a kitchen fire, the doors and every crevice shut, while he stood stark naked in the middle, holding, as well as he could, by a rope fastened to a joist; while an attendant kept pouring or sprinkling water from a watering can upon the heated bricks. He was soon enveloped in steam, which was kept up from fifteen to twenty minutes, hot bricks being supplied from the fire. He was then well rubbed with warm dry towels, then incased in a flannel shirt, and was put to bed in warm blankets. It is proper to state, that he had been previously bled and purged, and had the night before taken a dose of James' and Dovers' powders. Next morning the pain was gone, and swelling of the joints abated. As he could not hold long on by the rope, another person had to hold him up. This plan, however, is now abandoned by the great majority of the profession.

The stimulant plan. This plan, which consisted in administering bark, guiacum, and other stimulating, febrifuge, and diaphoretic remedies, had among its advocates Fothergill and Haygarth, the latter of whom was a strong advocate for the use of the bark. There is no doubt decoction of guiacum, and other preparations of the same drug, may be, and are often, very useful, in the sequel of acute rheumatism; but we cannot believe they ever relieved, much less cured any one in the early stage, and if the disease was at any time speedily removed, it was by those other remedies with which the advocates of this measure, strangely enough, mixed it up, viz. with bleeding and calomel purges, thus blowing heat and cold at the same time.

The *colchicum plan.* Colchicum or Meadow Saffron has been long known as a powerful medicine, (see *Meadow Saffron*), and within the last twenty years, the root of this plant, and preparations, have attracted a considerable share of attention from the faculty, as valuable remedies, in various diseases, and among others, rheumatism. We consider colchicum, in conjunction with some other means, the physician's sheet anchor in the treatment of acute rheumatism; and now for the treatment we would recommend.

Brought to the bedside of a youth just arrived at adult age or in his prime, suffering from the pains of acute rheumatism, the pulse full and bounding, but not hard, and beating at the rate of nearly 100 or 120 in a minute, with a white, pasty covered tongue, a hot skin, accelerated respiration, confined bowels, and scanty, and most probably high coloured urine, and if he has been two or three days ill, his body covered, and if not recently shifted, his shirt almost saturated with a most offensively sour perspiration or sweat. In such a case, bleeding to the extent of from twelve to sixteen ounces, should be the first step, and immediately after, or as soon as the faintish state induced by the bleeding has subsided, the patient should be placed in a sulphureous bath.

at about 90, in which one pound of the sulphuret of potash is dissolved, and the temperature of the bath gradually advanced to 94, or even 96. The patient is then to be thoroughly dried, and a large flannel shirt put on; and as soon as put to bed, the compound castor oil enema, should be administered, and two Plummer's pills may after its operation be swallowed, and likewise two of the following:

Extract of Stramonium, six grains.
——— Henbane.
——— Hemlock, each twelve grains
Powder of opium, nine grains.
Form intimately into a mass, and divide into twelve pills.

The following mixture is then to be prepared, and after four hours elapse, if the patient is restless, one of the above pills, and a fourth part of this mixture, is to be taken every four hours:

Vinegar of meadow saffron, three drams.
Syrup of ginger, or simple syrup, one ounce.
Magnesia, one dram,
Sweet spirits of nitre, two drams.
Water, or peppermint water, as much as will form a six ounce mixture.

Rub the magnesia and syrup together, in a wedgewood mortar, and gradually add the water, continuing the rubbing. Pour the mixture into a vial, then add the vinegar, and spirit, and form a mixture, which should always be shaken before it is used. Where the arum can be procured, we prefer adding the same quantity of the vinegar of meadow saffron, to five ounces of the emulsion of arum, and one ounce of simple syrup, and taking it in the same way. If these means fail in procuring relief, by the time the mixture is expended, and our pills are taken, it may perhaps then be necessary, especially in a robust subject, if relief is not obtained, and the pulse not reduced, to take away another twelve or sixteen ounces of blood, and apply a sinapism twice the size of our page over the chest, for forty minutes. If there is a constipated state of the bowels, two Plummer's pills may be taken, (but the dose of the pills is not to be repeated); and followed in two hours by a black draught, sweetened, and warmed every three hours, till free relief of the bowels is obtained. When, however, the bowels are opened, the draught may be omitted, and the mixture with the vinegar and magnesia resumed, only increasing the quantity of the vinegar to four drams, in place of two, a fourth part and one of the pills, as at first, being taken every four hours. If the patient is restless, two of the pills may be taken at bed time along with two Plummer's pills, as at first. A perseverance in a plan like this, seldom fails in affording relief. When the inflammatory symptoms are somewhat abated, the other medicines may be omitted, and the patient confined to a warm aperient medicine at bed-time, with one dram of the vinegar of meadow saffron, and half a dram of each of the tinctures of opium and henbane, and the same quantity of the sweet spirits of nitre. As soon, however, as the patient can sleep without an opiate, it is to be omitted, and the laxative with the dram of vinegar given alone; the vinegar is gradually to be relinquished, ten drops less being taken every night, but a gentle aperient is to be continued every night for some weeks. Local blood-letting, by leeches, from the affected joints, is often a salutary measure, but if our article on this subject, and the other articles referred to, are read with ordinary attention, we have no doubt the sufferings of those labouring under acute rheumatism will be greatly abridged.

The *treatment* in the truly chronic we would conduct on other principles. In this the stimulating plan may be, and really is, useful. The decoction of guiacum, taken as directed under the article *Guiacum*, to which we refer, and from thirty to forty drops of the ammoniated tincture of guiacum at bed-time, with an occasional ten grain dose of Dover's powder, where sleep is required, will generally afford relief. The anodyne liniment may be rubbed on the affected parts, and if the patient is above fifty, the bowels may be kept open, by the compound powder of aloes. Great relief will be experienced from an enema, at bed-time, composed of thirty drops of laudanum, and twenty drops of each of the tinctures of henbane, stramonium, hemlock, and colchicum, in cases where Dover's powders fail in procuring sleep. The prescription may savour of empiricism, but we can assure our readers it is founded on experience, and we have found a mixture of anodyne narcotics produce effects which no single medicine could produce. It now becomes a paramount duty to tender advice to those who have suffered from acute rheumatism, and who are most likely to become the victims of chronic rheumatism, either in an active or passive form.

The first advice, then, we would tender, is, beware of *atmospherical vicissitudes*. It is not abstract cold, but the vicissitudes from cold to heat, that is most to be dreaded. Nocturnal exposures, (see *Air*) damp, and in fine, moisture and wet, even in the form of a summer shower, are to be avoided by the rheumatic. An attentive perusal of our article *Flannel* will afford some useful hints. We do not say to a young man who has had an attack by acute rheumatism in summer, go and wrap yourself up in a flannel shirt, like a grandfather, but we advise him to wear a stout brown cotton undershirt, and a linen, or a finer cotton one above it in summer; but in winter, and if much exposed to vicissitudes, a worsted jacket, with long sleeves, in other words, a Guernsey frock, or worsted sailor's jacket, should be worn between the inner and upper shirt, or one of the same shape made of flannel, or leather. Chamois leather drawers should be worn in autumn and in winter, stout cotton drawers in summer, and severe or winter weather, stout flannel, or

plaiding drawers, should be worn, extending down to the ancle. See *Clothing*, &c.

Intemperance, hot tea, and coffee-bibbing before going out, are highly improper, but a well-timed dish of good tea, or coffee, will often avert a fit of rheumatism. The rheumatic should never lounge on the green sward, or repose in the open air, and equally pernicious to him will be a temporary nap on a sofa, or on any other place, without a suitable covering, or being undressed; for assuredly if he walks out into the cold air, after half an hour or an hour's nap, without an additional covering, he will feel a chill, which is a warning knell for a fresh attack.

We intended to have taken a review of the comparative merits of different popular remedies in rheumatism, but the space this article already occupies forbids the attempt. We hope, however, our young readers, who have inherited rheumatism, and have already suffered from its severe inflictions, will peruse with attention our article on flannel, as we are convinced, that used as an article of under dress, without being frequently shifted, it rather promotes than prevents the disease.

RHODIUM OR ROSEWOOD. Supposed to be the *genesta anarcensis* of Linnæus. It is imported from the Canary islands, and is chiefly valued for its essential oil, which is very expensive, and now principally used as a perfume, but possesses cordial and corroborant virtues, and two or three drops, rubbed up with refined sugar, in an ounce of water, forms an agreeable cordial. The oil is greatly valued by rat catchers, and these destructive animals are attracted by its pleasant odour. As a medicine it is out of fashion, but were the oil to be obtained at a cheaper rate, it would form a valuable variety for covering of disagreeable odours, and rendering more effective medicine more agreeable. Happily the duty is now greatly reduced.

RHUBARB. There are no less than six varieties of rhubarb used in medicine in this country, and in France, &c.; although there is chiefly only four kinds known in British commerce. The *Rheum palmatum* is the species assumed, in the London Pharmacopeia, as the source of the rhubarb of the shops. It is distinguished from other species by the palmated form of its leaves. This species grows wild on the mountains of Chinese Tartary, and in Thibet; but is cultivated in the United Kingdom for the root, which, dried and prepared, constitutes the British rhubarb of our druggists. The *Rheum compactum* is a native of Tartary and China, and has very smooth, shining, obtuse leaves, somewhat lobed with small teeth. The *Rheum Australe* has roundish, cordate, obtuse leaves, and grows in Chinese Tartary, and in the Himalayas.

Mr Pereira, who has given the best account we have met with of the different species of rhubarb, regrets that we are yet in want of a good account of the method followed in preparing Asiatic rhubarb for the market; but we think it a matter of deeper regret, that it is so difficult to convey to the mind of the reader those marks and characteristics by which good rhubarb can be distinguished from that of an inferior quality, and more especially, after it has been reduced to the form of powder; seeing there is such a difference in the price, that an ounce of one kind may be sold at a price which would procure four ounces of another, while the unpractised eye and nose could scarcely determine which was the best article. The four kinds met with in the English market are, the *Russian*, the *East India or Chinese*, the *Dutch trimmed*, and the *English or British Rhubarb*.

1. The *Russian*, or as it is sometimes called, the *Turkey Rhubarb*, is selected with great care and the Russians hold a monoply of the article, from a treaty which they entered into with the Chinese. The root is examined by a Russian apothecary, stationed at Keachter for the purpose, and the worm-eaten pieces are rejected, the others bored to ascertain their soundness, all the damaged and decayed parts are cut away, all the pieces that do not pass are burned, the remainder forwarded to St Petersburgh, and from thence to Britain. The size and shapes of the pieces are various, but the small pieces are preferred, and are, therefore, picked out by the drug merchants, and sold under the name of picked Turkey rhubarb, the larger pieces and the dust being employed for powdering. Holes are observed in many pieces, some of them extending completely, and others only partially through. Externally the pieces are covered with a bright yellow coloured powder, usually said to be produced by mutual friction during the passage; but some unprincipled druggists produce the same appearance on home grown rhubarb, by *rauncing*, or shaking the pieces in a bag with powdered rhubarb. The odour of the real Russian rhubarb is strong and peculiar, but somewhat aromatic; a person of acute smell, if once shown a few good specimens, could scarcely ever after be deceived; it is, however, considered to be so delicate that, in all wholesale houses, a pair of gloves is kept in the Russian rhubarb drawers, with which only are the assistants to handle the pieces. When chewed it feels gritty under the teeth, from the presence of numerous crystals of oxalate of lime; it communicates a bright yellow colour to the saliva, and has a bitter, slightly astringent taste.

Beneath the dust with which the pieces are covered, the surface has a reddish white tint, owing to the intermixture of white and red parts. The yellowish white parts have the form of lines or veins, which, by their union with

each other, assume a reticular form. Irregularly, over the surface, are scattered small star-like spots, and depressions of a darker colour. The transverse fracture is uneven, and presents numerous brownish, red, or dark carmine coloured undulating veins. The longitudinal fracture is still more uneven, and shows the longitudinal direction of the veins, which are often interrupted with white. The surface obtained by cutting is more or less yellow, and often exposes the veins in groups.

By boiling very thin slices of the root in water, and then submitting them to the microscope, cellular tissue and clumps of oxalate of lime will be observed. Some have considered the presence of these crystals sufficient to distinguish Russian and Chinese rhubarb from that grown in Europe; but these crystals are often to be as numerously met with in the British, as in the Russian; and we attribute their presence, in a great measure, to the nature of the soil in which the plant grows. The powder of Russian rhubarb is of a bright yellow colour, with a reddish tint; but, as met with in the shops, it is almost invariably mixed with the powder of the British rhubarb.

There is a variety of *white or imperial rhubarb*, imported from Russia, which is white, has a sweet taste, and in its effects equal to the the other; indeed, some of the pieces of Russian rhubarb have a much whiter appearance than is usually observed, but the white sweet Russian rhubarb is rarely met with.

2. The *China or East Indian rhubarb*, is brought directly either from Canton, or indirectly from other parts of India. The pieces are frequently cylindrical, or roundish, but sometimes flattened, and in trade distinguished as *rounds* and *flats*. The roots of this kind appear to have been submitted to a different process than the Russian. The cortical portions of the root seem to have been scraped, rather than sliced off; and hence the surface is not so angular, and on the worst pieces are observed remains of the greenish brown, or blackish bark, and these are said to be half trimmed. The pieces are generally perforated with holes, in many of which are bits of cord, by which they had been suspended to dry; but the holes are smaller than in the Russian, and have a darker colour in their inside. It is only, however, the *best pieces* of the Indian rhubarb that are at all likely to be substituted for the Russian, and they are even more compact and heavier than the Turkey; they are covered with an easily separated yellow dust. When this is removed, the surface is seen not to be so regularly reticulated, is more of a yellowish brown than reddish white colour, and has coarser fibres than the Russian. The odour of this species is much less powerful than that of the Russian rhubarb, and is somewhat less aromatic. The taste, however, and grittiness when chewed, and the microscopic appearances, are similar to those of the Russian, but the colour of the powder is of a more dull yellow, or brownish cast.

3. *The Dutch trimmed rhubarb* is the third variety in commerce, and is sometimes called the *Batavian;* it is brought from Canton and Singapore, and is well known to druggists, being quoted as a distinct kind in their price currents. In shape, size, and general appearance it resembles the Russian kind, for the cortical part of the root seems to have been separated by slicing, and hence the pieces have the same angular appearance on the surface that the Russian has; but the pieces are frequently perforated, and in the holes are found the remains of the cord by which the root has been suspended; this is never the case with the Russian, while the colour and weight of the pieces are very variable.

4. The *English or British rhubarb.* This kind is cultivated in the three kingdoms, but most generally in England and Scotland, and is most frequently the root of *rheum palmatum*, or palmated rhubarb, although the roots of the other varieties, which are cultivated in the country, are frequently mixed with it. There are two kinds sold in the shops under the name of British rhubarb: one is *dressed* or *trimmed* so as to resemble the Russian kind, the other, or *undressed*, is sometimes called *stick* rhubarb, and is only the smaller roots of the dressed kind. The finest pieces of the best British is frequently hawked about London, by Jews, &c., and other parts, and sold as real Turkey rhubarb; it is perforated with holes, and every other imitation of the Russian attempted. The best dressed and prepared pieces are light and spongy, especially in the middle, attractive of moisture, pasty under the pestle, and have a reddish or pinkish hue, not observed in the Asiatic kinds. Internally it has usually a marbled appearance, the streaks are pinkish, parallel, and have a radiated disposition, and in the centre of some of the larger pieces the texture is soft and woolly, and may be easily indented by the nail. Its taste is astringent and very mucilaginous, and is not at all, or only very slightly, gritty under the teeth, its odour is feeble, and more unpleasant than either the Russian or East India kinds. The microscope discovers in it, for the most part, very few crystals of oxalate of lime. The *common stick English rhubarb* is only the smaller roots, and are employed in making the watery extract, tinctures, infusions, &c., or being cut up to mix with purgative bitters.

Analyses of the three Asiatic varieties we have described, prove that the constituents are the same, and the difference in the proportions of the various ingredients very trifling. The

difference between the constituents of the British or European rhubarb, and the Asiatic, consists in the presence of rhaponticen and starch, neither of which are in the Asiatic, and in the absence of oxalic acid, and in the small quantity of ashes yielded by the insoluble residuum. The constituents of rhubarb, according to the analysis we have referred to, are a peculiar principle denominated *rhabarbarin*, yellow colouring matter, bitter astringent extract, oxydized tannin, mucilage, matter extracted from fibre by potash, oxalic acid contained in potash ley, insoluble residue with the portions lost in drying the root, and in analysis. We do not think it necessary to enter farther into the chemistry of rhubarb, having given the above analysis of the Chinese rhubarb, and the two articles contained in the British not to be found in the Asiatic.

An attentive perusal of the above peculiarities of the different kinds, will enable a domestic practitioner to inquire for the kind of rhubarb that he may want, and likewise to form something like a correct estimate of its relative value.

Rhubarb is an old and a useful medicine, in small doses an astringent, but in large ones a purgative and a tonic. In the former, or in small doses of from four to eight grains, it acts as an astringent tonic, its action being principally or wholly confined to the digestive organs; thus in debilitated conditions of these parts, it promotes the appetite, assists the digestive process, and improves the condition of the mucous secretions. In *large doses* of from a scruple to a dram, it operates as a purgative, slowly and mildly, though sometimes with a little griping, but it never inflames the mucous membrane of the alimentary canal as jalap, scammony, colocynth, and other drastic purgatives do. Constipation usually follows its purgative effect, and which is referred to its astringent principle. In febrile complaints, and inflammatory diseases of the lungs, and their covering, it is conceived to accelerate the heat of the body, and in such cases is deemed improper.

It is ordered by the Pharmacopeias in various forms. The *infusion* is made by macerating one dram of the sliced root, in half a pint of boiling water, in a covered vessel, and then straining. This is given to children as a purgative, and stomachic, in doses of from an ounce to two, every two or three hours; of course it will require to be sweetened, and if the same quantity of bruised cinnamon is put in the vessel along with the rhubarb, the infusion will be much improved.

1. *The Tincture* is made by macerating two ounces of the bruised or sliced root, half an ounce of bruised cardamom seeds, and two drams of saffron, in two pints of proof spirit (whiskey or brandy) for seven days, and strain.

2. *Compound tincture.* Two ounces of the sliced root, half an ounce of bruised liquorice root, two drams of bruised ginger, and the same quantity of saffron, proof spirit one pint, and water twelve ounces; macerate for seven days and strain.

3. *Tincture of Rhubarb with Aloes.* Seven drams of the sliced root, six drams of bruised socotorine aloes, half an ounce of bruised cardamom seeds, two pints and a half of proof spirit; macerate for seven days and strain.

4. *Tincture of Rhubarb and Gentian.* Two ounces of sliced root, proof spirit two pints and a half; digest for seven days and strain.

These are all valuable tinctures, especially the *first* and *fourth*, in cases of dyspepsia, colic, diarrhea, or flatulent colic from eating cold fruit; the dose may be regulated from half an ounce to an ounce or more. The former dose will answer best in cases where it is not necessary to produce full purging, but where that effect is wished to be produced, six drams of number three will operate freely, and is an excellent warm purge for the aged.

The wine of Rhubarb. Two ounces of the sliced root, one dram of bruised cannella alba bark, proof spirit two ounces, Spanish white wine one pint; digest for seven days and strain. This wine would be greatly improved, by the addition of two drams of cinnamon bark, to the other ingredients.

RHUTTANY ROOT, or RHATANIA This root was introduced to the notice of the faculty about twenty years ago, by the late Dr R. Reece. Externally, it somewhat resembles the roots of madder, and its virtues appear to reside in the cortical part, which is thick and resinous. An opinion prevails that the substance sold in the shops under the name of foreign extract of bark, is made from rhatania. This root is certainly possessed of very considerable qualities, and has an aromatic, bitter, astringent taste; it is powerfully tonic, and is prescribed in debility of the digestive organs, in chronic rheumatism, ague, and fluor albus, with good effect. It is given in the same doses as Peruvian bark, and it may be prepared in the same proportions in the form of infusion, extract, decoction, tincture, &c. The latter, viz. the tincture, with equal parts of the tincture of myrrh, is an excellent gargle for the mouth in cases of loose teeth and spongy gums; and even superior to the tincture of bark for the same purpose. By consulting the article *Cinchona* or *Peruvian Bark*, the proportions in which it is used will be found; and the simple or compound tincture, infusion, or decoction, may be prepared in the same proportions, only substituting the rhuttany for cinchona. The extract of rhuttany was long known to fraudulent wine merchants, who, by mixing or digesting a little of the extract in

inferior port wine, gave it an appearance of age and strength. This, however, is a very harmless adulteration, as it only affects the purse, and not the health of the purchaser; and a little of the extract or root dissolved or infused in elder wine, is a great improvement to that domestic liquor.

RIB. The ribs are long curved bones, placed in an oblique direction at the sides of the chest. Their number is generally twelve on each side; but, in some subjects, it has been found to be thirteen, and in others, though more rarely, only eleven. They are distinguished into *true* and *false* ribs. The seven upper ribs, which are articulated to the sternum, are called *true* ribs, and the five lower ones, which are not immediately attached to that bone, are called *false* ribs. The use of the ribs is to give form to the thorax, and to cover and defend the lungs; also to assist in breathing; for they are joined to the vertebræ by regular hinges, which allow of short motions, and to the sternum by cartilages, which yield to the motion of the ribs, and return again when the muscles cease to act. See *Respiration.*

RIBS, Fracture of. The ribs may be broken by injuries in various ways—by direct violence, falls, the pressure of heavy bodies, pressing of the chest, and they generally give way anteriorly to the angles at the most convex point; but sometimes near the spine, or the breast bone. At the same time they may be partially dislocated at either of the extremities. The fracture is generally transverse, occasionally, but rarely, oblique. The skin is sometimes divided, but more frequently the pleura and lungs are torn by the broken ends projecting internally, and hence effusion into the chest; or effusion of air into the subcutaneous cellular tissue near the fracture, take place. Crepitation is felt by the patient, and is easily detected by the surgeon if he places his hand on the injured part whilst the patient attempts to take a full breath; crepitation, however, is very indistinct in some cases: as for example, where the fracture is situated near the spine, and one rib only broken, or where the accident has occurred a considerable time before the patient is seen. In cases of fracture of the ribs, respiration is very difficult, and attended with great pain, so that the patient dreads making the attempt: coughing, speaking, or any movement of the trunk also aggravate his suffering, whilst, by fixing the ribs by applying the hands firmly on each side of the chest, affords relief during breathing. In most cases, if the patient is seen immediately after the accident, all that is necessary is to apply a broad bandage firmly round the chest, so as to prevent motion; and this bandage requires to be fixed by two other slips of bandage brought over the shoulder after the manner of braces, to prevent its slipping.

In the young and plethoric, blood may be drawn, and other antiphlogistic measures resorted to with advantage, to prevent the occurrence of inflammation; and if inflammation should occur, these measures require to be very actively employed. See *Lungs, Inflammation of.*

RICE, or *Oryza Sativa.* This important article of food is now cultivated in all the warmer parts of the globe. It was long known in the East before it was introduced into Egypt and Greece. Pliny, Dioscorides, and Theophrastus, mention it as being brought from India; but it was little cultivated in their time upon the borders of the Mediterranean. It was introduced into Carolina about the year 1697, and is now cultivated extensively in many parts of the south of Europe. In Britain, the chief supply of rice is from Carolina; and this is considered far superior to the India rice, which is small, meagre, and the grains frequently broken. Immense districts of country would have remained desolate and irreclaimable, if nature had not granted to a simple grass the property of growing exclusively in inundated and marshy grounds. It has altered the face of the globe and the destiny of nations; for there can be no doubt that it is to this grain that the Chinese and Hindoos owe their early civilization. An immense population in those and the surrounding countries is now dependent on the rice crops; and when these fail, thousands perish of hunger.

The culm of the rice is from one to six feet high, annual, erect, simple, round, and jointed; the leaves are large, firm, and pointed, arising from very long, cylindrical, and finely striated sheaths; the flowers are disposed in a large and beautiful panicle, somewhat resembling that of the oat. The seeds are white and oblong, but vary in size and form in the numerous varieties. It is important to be acquainted with these varieties, in order to choose which are best suited to certain soils and localities; some are preferable on account of the size and excellence of the grains; others, from their great bearing, or the time of ripening; others, again, from their more or less delicacy with respect to cold, drought, &c. The Hindoos, Chinese, Malays, and the inhabitants of the neighbouring islands, have paid most attention to the cultivation of these varieties. One species only of rice is known. Rice can be profitably cultivated only in warm climates; and here it is said to yield six times as much as the same space of wheat lands. The Chinese obtain two crops a year from the same ground, and cultivate it in this way from generation to generation on the same soil, and without any other manure than the mud deposited by the water of the river used in overflowing it. After the waters of the inundation have withdrawn, a few days are allowed for the mud to become partially dry; then a small plot is enclosed by an embankment,

lightly ploughed and harrowed, and the grain, previously steeped in dung diluted with animal water, is then sown very thickly on it. A thin sheet of water is immediately brought over it, either by a stream or by the chain-pump. In the mean time, other spaces are preparing for being planted in a similar manner. When the plants are six or seven inches high, they are transplanted in furrows made by the plough, so as to stand about a foot apart every way: water is then brought over them, and kept on till the crop begins to ripen, when it is withheld; so that when the harvest arrives the field is quite dry. It is reaped with a sickle, threshed with a flail, or the treading of cattle, and the husk is taken off by beating it in a stone mortar, or passing it between flat stones, as in a common meal mill. The first crop being cut in May, a second is immediately prepared for, by burning the stubble, and this second crop ripens in October or November. After removal, the stubble is ploughed in, which is the only vegetable manure such lands can be said to receive. In Japan, Ceylon, and Java, aquatic rice is cultivated nearly in the same manner. A rice plantation requires constant attention. The proprietor must make daily visits, in order to see that the various aqueducts, flood-gates, and embankments of the different compartments are all in order, and that the water constantly remains at the same height. The maturity of the grain is ascertained by the yellowness of the straw, and it is harvested much in the same manner as other grains, with this difference, that in certain districts the tops only are cut. Rice, when stowed in the granary, is subject to the depredations of a small curculio; but it is found that this insect attacks it only when enveloped in the husks. Aquatic rice is cultivated by the Chinese, even in the midst of rivers and lakes, by means of rafts made of bamboo, and covered with earth. Mountain rice is cultivated on the mountains of the eastern islands and of Cochin-China, much in the same way as our barley; but it is to be observed, that it is planted at the commencement of the rainy, and reaped at the beginning of the dry season, and also that these mountains receive from the atmosphere a much greater proportion of moisture than lower districts. There is a kind of rice hardy enough to grow on the edge of the Himalaya snows, and which may probably, at some future time, prove a valuable acquisition to the European cultivator. Rice is even cultivated in the south of Germany, and, from long culture in a comparatively cold country, has acquired a remarkable degree of hardiness and adaptation to the climate—a circumstance which has frequently been alluded to as an encouragement to the acclimating of exotics: it is found that rice seeds direct from India, will not ripen in Germany at all, and even Italian or Spanish seeds are much less early and hardy than those ripened on the spot. A crop has been obtained in England, on the banks of the Thames. In some parts of the East, rice is freed from the husks by immersion in hot water, by which the grains are slightly swelled, and burst the envelopes.

As an article of diet, rice has been extolled as superior to almost any other vegetable. Large quantities are annually imported into Europe, and it is highly esteemed in puddings and numerous other culinary preparations. On account of its being destitute of gluten, it cannot be made into bread, like wheat. Indeed, on account of its excellence and cheapness, it claims attention as a general article of sustenance for the poorer classes of society; as it is well known that a quarter of a pound of rice, slowly boiled, will yield more than a pound of solid and nutritive food. However, it has been found that, in Europe, the poor constantly reject the use of rice when potatoes are to be had; and, in truth, it does not seem to be so well adapted to European constitutions as that root. The inhabitants of the East obtain from rice a vinous liquor, more intoxicating than the strongest wine; and an ardent spirit, called *rak* or *arrack*, is also partly made from it. The latter is chiefly manufactured at Batavia, and at Goa, on the coast of Malabar, and is said to be distilled from a mixture of the infusion of rice, and of the juice of the cocoa-nut tree. The general appellation of rice throughout the East Indies is *paddy*.

RICKETS AND SOFTENING OF THE BONES. These affections differ only in this, that in the former the earthy matter which gives solidity to the bones, is not deposited originally; whilst in the latter, or softening of the bones, it has been absorbed after having been deposited; in every other respect the appearances and consequences are similar. Rickets is a disease peculiar to the young; whilst softening from absorption of the earthy matter may occur at any period of life. The disposition to rickets is frequently first noticed in children during teething, or follows measles, scarlatina, hooping-cough, or some other infantile disease which induces great constitutional weakness. Softening of the bones in adults also frequently supervenes on protracted and exhausting illness, or long continued discharges, such as the fluor albus, or whites in females; immoderate flow of the menses, miscarriages, floodings, and loss of blood, in any way, predisposes to it. The abuse of mercury is said also to produce it; and Mr Liston mentions that in some remarkable instances on record, the free use of common salt was the only cause which could be assigned for its occurrence. When children are affected with rickets, all the osseous structure generally suffers; the bones of the limbs as well as those of the trunk. The limbs become bent and

twisted in the most extraordinary manner; the head appears swollen, and the openings in the skull (fontanelles) are larger than usual: the heads of the bones, entering into the different joints, become enlarged, and appear even more so than they really are, owing to the wasting of the parts which cover them. The child at first walks with difficulty, and in many cases the limbs are unable to support the weight of the trunk, so that he cannot stand erect. The chest and pelvis become deformed, the breathing is rendered difficult by the compressed state of the chest, whilst the viscera of the pelvis and abdomen being displaced, the digestive organs become deranged, and the belly is swollen and protruded.

The bones in this disease are found to be soft and cellular, and deficient in earthy matter, sometimes consisting of a mere osseous shell containing pulpy matter; but more frequently they are softened throughout, presenting the appearance of a bone which has been macerated in acid, so as to decompose its earthy part. (See *Bones.*) In most cases of rickets, as well as in softening of the bones in adults, the urine is found to deposit a large quantity of a white sediment, which is the phosphate of lime. In softening of the bones in adults the limbs are seldom affected; the bones composing the spinal column are most generally the seat of the disease; and from this cause the position of the ribs necessarily becomes changed.

Mr Liston, in treating of this disease, says, 'Though incurvation of the spine occurs in boys, and even in adults, still it is most frequently met with in young females; and in them, it is often induced by their having assumed a bad habit of sitting long in one constrained and awkward posture, as in writing or drawing, without, perhaps, the bones being unnaturally soft in the first instance. It often follows affections of the lower limbs, as of the knee or hip-joint; and is also caused by shortening of the limb which has been negligently or ineffectually treated after fracture during childhood, or by the patient being allowed to continue a custom of standing awkwardly on one leg. At first, during slight curvature from such causes, the spine can be brought into its original straight position by the voluntary actions of its muscles. After some time, however, the curve cannot be remedied by any effort; interstitial absorption occurs in the bones, and they become changed in form. When the curvature is situated in the dorsal vertebræ, (see *Skeleton* and *Vertebræ*) it is generally to the right side, the shoulder is raised, and the chest is protruded, whilst the opposite side is depressed and flattened. The clothes hang loose, or fall off on the left side, the patient rests the weight of his body chiefly on the left leg; on stooping, the right scapula or shoulder bone projects, and, on examination, is found to be nearer the spinous processes of the vertebræ than the left. The left cavity of the chest is diminished, and the ribs press upon the heart and lungs, causing difficulty of breathing. To preserve the balance of the body a curvature occurs below the former, and in the opposite direction; and not unfrequently there is a third incurvation, situated above the primary one.

'The bones of the pelvis become distorted, and are twisted to one side; or, when the softening is great, and the patient confined to the recumbent position, the cavity of the pelvis becomes diminished. When the bones become consolidated after such distortion, they present most serious obstacles to parturition; and, most unfortunately, the fact of crooked and deformed women possessing "great aptitude for conception," is notorious. When in such females the untoward circumstance of pregnancy has occurred, it has been necessary in some to have recourse to the Cæsarean operation; and others have been delivered with the greatest difficulty and danger.'

In some cases curvature of the vertebræ is the result of caries; or these bones may become affected secondarily, from the pressure of purulent matter forming originally in the surrounding tissues, as in psoas or lumbar abscess. When, however, from any cause the displacement is such as to affect the spinal marrow or chord, which is contained within the canal formed by the vertebræ, then the symptoms are very alarming: the lower limbs become paralytic, and this generally occurs gradually. The patient is noticed to walk awkwardly. He lifts the feet high, and then puts them down clumsily and suddenly; the palsy becomes complete; then the bowels lose the power of retaining their contents, whilst he is unable to pass his urine owing to palsy of the bladder; and when this organ becomes distended, there is a constant dribbling of urine, causing excoriations and sores. See *Lumbar Abscess.*

Treatment of Rickets. The only treatment we can trust to in this disease, must be the employment of those remedies which strengthen the general system, and the abstraction of every habit, occupation, or mode of living which tends, either directly or indirectly, to debilitate the system. At one time the phosphate of lime, and carbonate of lime, were in use, for the purpose of supplying the deficiency of earthy matter in the osseous system of the patient; but the efficacy of this plan of treatment is exceedingly doubtful, although, in small doses, they may form useful, or at least harmless adjuncts to the general plan of treatment, which consists in the exhibition of tonics, generous diet, gentle exercise, frictious sea-bathing, giving support to the parts affected by means of light and well adapted machinery. Whilst speaking of mechan-

ical apparatus, we cannot forbear again quoting the judicious remarks of so high an authority as Mr Liston, with regard to this important point. 'Much mischief may be done by clumsy and heavy apparatus, which confine the movements of the patient; the muscles are wasted, consequently the spinal column is weakened; the general health is impaired, and the disease is aggravated. In cases of curved spine, apparently arising from bad habit, the patient should be in no degree confined at writing or drawing; his posture while at work or play ought to be attended to, as well as his mode of walking and standing; and if awkward, prohibit it. Gymnastic exercises of the more gentle kinds ought to be enjoined. Carrying weights on the head can only be applicable in certain cases. The shoulders ought to be kept back by means of a light back board. Frequently advantage will result from the patient's sleeping on a hard mattress; and in bad cases, from lying down when tired on an inclined plane.'

In bad cases, where the limbs are so much affected by the softening of the bones, that the patient cannot even maintain the erect posture, as a matter of course it becomes necessary to confine the patient to the recumbent position, supporting the head and shoulders by means of light and well adapted apparatus; at the same time employing the various remedial measures already mentioned, for the purpose of improving the general health, and invigorating the constitution.

RING-WORM. There are two distinct forms of this disease, the one occurring in the form of an eruption of small vesicles encircling a portion of healthy skin, on any part of the body; the other, and more infectious ring-worm, is a pustular eruption, of circular form, occurring on the scalp. The former of these eruptions, or *herpes circularis*, as it is technically termed, appears in small circular patches, in which the vesicular eruption arises only round the circumference. The vesicles contain at first a clear fluid, which is generally discharged about the third or fourth day from the appearance of the eruption, and is then followed by a dark brown scab, the eruption generally re-appearing on some other part of the body. This disease is more common at some seasons than at others; and Bateman is of opinion that it is not infectious, but that the prevalence of the disease amongst the children of one family or school, depends on the same common exciting cause in all; in other words, that it is epidemic. The other, or pustular form, is most decidedly contagious; occurs in patches of flattened pustules, the patches being generally of an irregular circular figure when the pustules burst. Fresh crops of pustules appear, the discharge becomes profuse, the crusts thicken, the hair falls out, the affected surface extends, and, in neglected cases, sometimes the whole scalp is involved. Sometimes this disease is so unmanageable, as to continue for several years resisting all the remedies employed. It terminates in separation of the crust and cuticle.

Treatment. In the first stage of this disease there is generally great irritation of the surrounding skin, so that we must first try to allay this before proceeding to attack the eruption. This will be best effected by constitutional remedies, such as the exhibition of emetics and alterative purgatives. For example, giving an emetic at the first, then small doses of calomel and rhubarb, or Plummer's pill, followed by some saline medicine, and regulating the diet, which ought to be light and unstimulating. In this stage the local remedies consist in shaving the head, and applying warm water, rags covered with oiled silk, or bread and water poultices, over the eruption. When these measures have been used for some days, we may begin using stimulating lotions to the part, consisting of the solutions of sulphate of zinc, copper ore, or iron; or a weak solution of nitric acid, which is perhaps the best. Ointments should never be used except in the scaly stage of the eruption, and then the best is the weak citrine ointment. Sea-bathing is often useful; but the tepid or sulphureous baths are preferable. Great care should be taken to prevent the rest of the family from being infected. All combs, brushes, towels, and clothes, used by the person suffering from the disease, should be thoroughly washed after being used by the patient, and the other children kept at a distance from him till he is perfectly free from the disease.

ROCHELLE SALTS, tartrate of potass and soda. This neutral salt was first introduced into medical practice by M. Seignette, an apothecary at Rochelle, whose name it long bore. It is much used as an excellent and gentle purgative salt; the dose is from four to eight drams. It has a bitter taste, is soluble in about five parts of water, and deliquesces if long exposed to the air. Seidlitz powders consist of two drams of this salt, combined with two scruples of carbonate of soda, and half a dram of tartaric acid, which is put up separately, and added to the saline solution to make it effervesce.

ROSEBAY WILLOW HERB or the *Epitolium augustofolium*. This is an indigenous plant, common in woods and moist situations. It is a favourite article of diet with the country people in some districts of England, and the young shoots are little, if at all inferior to asparagus when boiled, and therefore a cheap substitute for that vegetable.

ROSEMARY or *Rosmarinus officinalis*. This plant is a native of the south of Europe, but is cultivated in these kingdoms, and is not unusually met with even in cottage gardens.

It seldom, however, arrives at perfection in the northern parts of Great Britain, or even yields flowers. The flowering tops have a remarkable, and not unpleasant odour, and a warm aromatic bitterish taste, depending on an essential oil combined with camphor. The officinal preparations of rosemary are its volatile oil and its spirit. The latter may be prepared either by dissolving one ounce of the oil, in a gallon of rectified spirit, and then adding about half a gallon, or as much water as will prevent the still from burning, and distilling of one gallon, or even by simply dissolving the oil in the spirit, without distilling it, or by macerating two pounds of the dried tops, cut small in one gallon of rectified spirit, and the same quantity of water, for twenty-four hours, and distilling off one gallon; this spirit, in whichever of these modes it is prepared, is externally applied to bruises and sprains, and enters into the composition of the compound soap liniment, and the compound spirit of lavender, it is a fragrant perfume, and is taken inwardly in languors and debility, in doses of from one dram to four.

The *celebrated Queen of Hungary water* is essentially a spirituous solution of the oil of rosemary. It received its name from the secret of its composition having been communicated by a hermit to a queen of Hungary. To improve its odour, oil of lavender and sometimes other odoriferous substances, are mixed with it. The following is considered an esteemed receipt for its preparation:—

Oil of rosemary, four ounces.
Essence of bergamot, one ounce.
Essence of musk, half an ounce.
Rectified spirit, thirteen pints.
Water five pints. Mix.

Some add half an ounce of oil of lavender. The oil of rosemary may be taken internally as a stimulant, in doses of a few drops, on a bit of sugar, it is likewise frequently employed externally, as a constituent of stimulating and rubefacient liniments, especially in cases of baldness. Rosemary, either dried alone, or in combination, is frequently used as a domestic tea, and as such is very refreshing, exerting a slightly stimulating operation on the nervous system, and although not much used by the faculty, is often employed for sick head-ache, especially after a debauch, with good effect, especially when a few cloves are infused along with it. The same is likewise useful to females who have a scanty discharge at the monthly period. The powder of the dried leaves is a component part of the most celebrated herb or cephalic snuffs.

ROSES. There are two kinds of roses the petals or flowers of which have found a place in our pharmacopeias, viz. the damask rose, or *rosa centifolia*, or hundred-leaved rose; and the red rose, or *rosa Gallica*. The former, or the leaves of the damask rose, have an extremely fragrant odour, and a sub-acidulous taste, and are considered to possess laxative properties; they are, however, principally valued for their flavour and colour, and a syrup and water find a place in the pharmacopeias.

The Syrup is prepared by macerating seven ounces of the dried petals or rose leaves in four pints of boiling water for twelve hours, then straining the infusion, and evaporating the strained liquor to two pints and a half, and then adding six pounds of refined sugar, so as to form a syrup. This is given in costiveness to infants and weak children, as a gentle laxative, sometimes alone, and occasionally mixed with equal parts of olive or castor oil. The dose of the syrup is from two drams to four.

The *Rose Water* is prepared by distilling a pound of the dried leaves in two gallons of water, drawing off one gallon. The water may be made either weaker or stronger according to the purpose for which it is intended. The rose water is used as an agreeable perfume, and as a pleasant medium for more powerful medicines. On distilling large quantities, there separates from the watery fluid a small portion of a fragrant butyraceous oil, which liquifies by heat, and appears yellow, but concretes in the cold into a white mass. One hundred pounds, according to some experiments, afforded scarcely half an ounce of oil. The petals of the red rose are chiefly valued for their astringent qualities, having less fragrance than the damask rose. The syrup is prepared in the same manner and proportions as the syrup above described. It is mildly astringent, and is used to sweeten gargles, &c. The infusion of roses, or rather the compound infusion, as it is denominated in the London pharmacopeia, is prepared by macerating four drams of the dried red rose leaves in two pints and a half of boiling water, in a glass, delft, or china vessel, for half an hour; then add three drams of diluted sulphuric acid, and macerate for another half hour; then strain, and add one ounce and a half of refined sugar. This simple infusion is one of the most useful and popular medicines of the present day, not only with the faculty, but in domestic practice. It possesses the odour of the rose, with a slightly austere sweet acid taste. It is a pleasant sub-astringent refrigerant gargle in sore throats and scarlet fever, and an excellent astringent refrigerant in hemorrhages, or discharges of blood from the womb. It is, however, more employed as a medium of administering the sulphate of magnesia or Epsom salts, as it effectually conceals the taste of that medicine. Those who read our pages with attention will find it frequently prescribed.

There is likewise a *Conserve* or *Confection of Roses* prepared from the petals, before the leaves are fully expanded. Having cut off and cast away the heels or yellow part of the petals, beat the petals to pulp, and during the beating

add gradually three times their weight of double refined sugar. There are several modes of preparing this popular domestic medicine beside the one we have quoted from the Edinburgh college. La Grange says, that by infusing the red rose leaves in four times their weight of water, and squeezing them out of the infusion, they lose their bitterness, and are more easily reduced to a pulp, which he then mixes with a thick syrup, prepared by dissolving the sugar in the expressed liquor, and boiling it down to the consistence of an electuary, or moderately thick honey. In either way, however, in which it is prepared, the conserve of roses is a useful domestic medicine for administering other medicines in; and even alone it is a mild astringent tonic, and is frequently taken in doses of half an ounce, rubbed up with half a pint of new milk, by the delicate and consumptive. For the mode of preparing *Honey of Roses*, see *Honeys*.

The Rosa Canina, or *Dog Rose*, is also employed in medicine, and it is the pulp of the fruit, or hip, that is the part employed. The ripe hips are carefully freed from the seeds, and beat down to a pulp in a wooden mortar, while three times their weight of double refined sugar is to be gradually added. In places where the hip is plenty, this will form a cheap domestic conserve or confection. The fruit is inodorous, having a sweet acidulous taste, depending on the presence of uncombined citric acid and sugar, and is cooling and refrigerant.

The conserve of the hips of the dog rose may be used for acidulating drinks; or by being infused in the quantity of an ounce with the same quantity of the conserve of the red rose, above described, in half a pint of boiling water, for an hour, and from fifteen to thirty drops of elixir of vitriol added to the decoction, it will form a most agreeable gargle in sore throats, and no insignificant medicine in uterine hemorrhages, in doses of a wine glass every three hours.

The Rosa Alba, or *White Rose*, possesses similar but inferior virtues to the damask rose; and indeed the petals, or rose leaves, white and red, of every variety, are used in the distillation of rose water; but the red rose should be carefully selected for making the infusion and conserve.

Rosa Solis, or *Sun Dew*, or the *Drosera Rotundifolia of Linnæus*. The juice of this elegant little plant, which is extremely acrid, was once in repute for removing warts and corns. It is never now employed by the faculty for that purpose; but a decoction is in great esteem by herbalists for the cure of asthma and old coughs. It produces in sheep who eat it a fatal coughing and delirium; and we feel persuaded, that while more effectual remedies are to be had, it would be useless to employ it.

ROSEWORT OR RHODEA, or the *Rhodeola rosea* of Linnæus. The root of this plant has a place in several of the foreign pharmacopeias. These roots, when dry, have a pleasant smell, resembling that of the damask rose; and it is in this odorous part the medical virtue of the root resides. Poultices, into which the powder of the root enters as a chief ingredient, are applied to the forehead, to allay violent nervous headache. The powder is also a useful ingredient in herb snuffs, and in tooth powders; in the former, however, its utility does not altogether depend on the agreeable flavour it communicates.

RUBEFACIENTS. External stimulating applications, which are applied for the purpose of irritating the surface, and so relieving internal or deep-seated irritation by producing counter-irritation. Their action is similar to that of blisters or vesicatories, but less powerful. They do not produce vesications or blisters unless too long continued, their usual effects being limited to produce a considerable degree of heat, pain, and redness of the surface, from the last of which effects they have received their name.

The best rubefacients are sinapisms, heated spirits of turpentine, ammonia, camphor, and embrocations, composed of aceto-spirituous solution of cantharides, with oil, tartar emetic, ointment, &c. Those best suited to particular cases will be found prescribed in those diseases in which their use is necessary.

RUE, or *Ruta Graveolens*. This common garden herb has been long a favourite with practitioners of domestic medicine. The ancients had an idea that stolen rue flourished the best, just as, says Pliny, it is said that stolen bees thrive worst. The leaves or herb is the part used in medicine. It has an ungrateful bitter pungent taste, a strong odour, and so acrid as to blister the skin. For the benefit of those who may have occasion to be handling fresh cut rue, we may give an illustration of its acridity. An apothecary cut down a considerable quantity of rue while in full bloom, and separated the leaves from the stalks. Next morning both his hands were very red and hot; and on the third day appeared as if they had been exposed to hot aqueous vapour. They were besmeared with oil; but towards evening vesication commenced, and was most severe on the points of the fingers. On the fourth day the parts were still much swollen, and between the blisters the skin had a dark red or purplish hue. On the fifth and sixth days the swelling extended up the back part of the arm as far as the elbow. Poultices were applied, and the blisters cut, and within four weeks the skin had gradually peeled off. His children, who had played with the rue, also suffered with swelling of the face and hands.

Rue loses much of its activity by drying; but

an infusion of the fresh herb is a popular remedy, under the name of *rue tea*, and is taken frequently with advantage as an emenagogue, when used immediately before and during the period of menstruation, when that discharge is either scanty or painful. When the fresh herb cannot be procured, the dried leaves are to be used in greater proportion. The same infusion is taken as an anti-spasmodic in hysteria and flatulent colic. A very strong infusion of the fresh leaves is also made into a syrup, which is kept in many of the shops, and given by nurses to relieve children of windy colic pains. This syrup may be prepared by adding eight or ten drops of the oil of rue to a pint of simple syrup, and shaking the mixture. The dose is a teaspoonful or two. The oil of rue may be given to adults in doses of a few drops, three or four, rubbed down with sugar and water.

The only other preparation of rue ordered by the colleges is the *extract*, which is used in the form of pills; but as the oil is dissipated in the preparation, it is not so active as when given alone, and requires the addition of a few drops of the oil; and in this way made into pills, it is used as an emenagogue. It is now getting out of fashion with the faculty. The leaves are sometimes distilled, and yield a water impregnated with the oil. It is prepared in the same way as the peppermint or pennyroyal waters, and is used as a medium for more active medicines.

The *Oil of Rue*, in over doses, acts as an acro-narcotic vegetable poison; and although accidents seldom occur with it so as to prove fatal, it occasions a strong sensation of heat in the stomach and bowels, headache, and delirium, accompanied with an oppressive dryness of the mouth and throat.

The *treatment* is emetics, such as directed in other cases of vegetable poisons, and afterwards drinking freely of acidulated demulcent liquors, such as barley water well acidulated with lemon juice or vinegar, the administration of a castor oil enema, and a sinapism to the pit of the stomach.

In dogs who have been killed by it the stomach affords evidence of severe inflammation. The only test is the smell of the oil, which is the same as that of the plant.

RUM; the distilled liquor obtained from the fermented juice of the sugar cane or molasses. The following is the process employed in Jamaica:—The materials for fermentation are molasses, scummings of the hot cane-juice, or sometimes raw cane-liquor, lees, or *dunder* (as it is called), and water. The dunder answers the purpose of yeast, and is usually prepared by a separate fermentation of cane, sweets, and water. The materials being mixed in due proportions (which are about equal parts of scummings, dunder, and water), the fermentation soon begins, and in twenty-four hours the liquor is fit for the first charge of molasses, which is added in the proportion of three gallons for every hundred gallons of the liquor. Another charge is added in a day or two, or afterwards. The heat in fermentation should not exceed 90° or 94°. The fermentation falls in six or eight days, and the liquor grows fine and fit for distillation. In about two hours after lighting the fire, the spirit begins to run (in a still of 1200 gallons); and it is collected as long as it is inflammable. The first spirit is called in the country *low wines;* and it is rectified in a smaller still, to the Jamaica proof, which is that in which olive oil will sink. The spirit called *New England rum* is prepared from molasses, and largely exported.

RUPTURE, or HERNIA. This term was first applied to hernia, under the erroneous impression that the protruded viscera were forced or had burst through the abdominal parietes, whereas the protrusion almost uniformly takes place through natural openings, which serve for the passage of vessels or other parts from within the cavity of the abdomen, and which have either been originally weak and deficient, or gradually become dilated from the continued action of the abdominal muscles pressing on the contained viscera, as in persons afflicted with cough, or difficulty in passing water, or any other cause which gives rise to violent straining; or the protrusion may occur even in the strongest and best formed from any violent exertion, as from wrestling, leaping, lifting heavy weights, &c. In general, however, the descent of the viscera is gradual, so much so, indeed, that it has often made considerable progress before it is noticed by the patient. The bowels, or omentum, descend, carrying before them a portion of the peritoneum, which thus forms a kind of bag, which more immediately contains the protruded parts, and has received the name of the hernial sac. When a hernia, occurring in this way, is first noticed, it forms a small elastic tumour or swelling, to which there is a distinct impulse given when the patient coughs; and if the patient be laid on his back, and gentle pressure employed to the tumour, it can be made to disappear with a peculiar gurgling sound, which denotes re-entrance of the gut within the cavity of the abdomen. When the hernia is large it is more liable to injuries, which cause it to inflame or swell, and thus give rise to dangerous symptoms. But it is wrong to say that large hernias are always the most dangerous; for in such cases the openings through which they pass are so much dilated that they are less likely to suffer so rapidly from constriction than small recent hernias; for in these latter, the parts through which they passed are firm, tight, and unyielding, and so prevent the parts being readily

returned if the gut becomes at all distended, and the stricture is always very tight. Rupture is said to be *reducible* when the protrusion can be returned into the cavity of the abdomen by means of properly employed pressure with the fingers, without the use of instruments; *irreducible*, when, on account of adhesions, the great quantity of the protruded viscera, or strangulation of the parts, it cannot be so returned. *Strangulated hernia* implies, that the parts are so tightly constricted as not only to prevent their being returned into the abdomen, but also to obstruct the natural action of the bowel, the passage of the fæces, and the free circulation of blood through the constricted part, thus giving rise to mortification of the intestine. This constriction may arise either from the bowel contained in the hernial sac becoming so distended by fæces or flatus, that it is no longer drawn out of the sac by the regular action of the rest of the intestines, and thus gradually becoming so distended as completely to fill up the opening through which it passed, and till at last it becomes tightly constricted; or it may arise from inflammation of the protruded parts, owing to irritation of some other portion of the intestinal canal, or engorgement, thickening, or inflammatory swelling of the parts round the neck or narrow portion of the hernia. *Incarceration* is applied to a slighter degree of constriction, in which, although the stricture is so tight as to obstruct the passage of the fæces and the action of the bowels, yet it is not tight enough to interrupt completely the circulation of the part, and the symptoms are less urgent.

Hernia occurs at different parts of the abdomen, and has received different names according to its situation. Thus, *inguinal* hernia protrudes through the canal which, at the lower part of the abdomen, forms a passage for the spermatic chord and blood vessels in the male, and the round ligament of the womb in the female. *Femoral* hernia occurs at the upper part of the thigh, on the inner side of the great vessels, passing from the abdomen to the lower extremity; whilst *umbilical* hernia occurs at the umbilicus or navel. Besides these, there are several other species of hernia described of a more obscure nature; but to speak of them would be more likely to confuse than instruct the general reader, and we shall therefore proceed now to describe

The symptoms produced by hernia. When a rupture is free from constriction, the patient feels little inconvenience from it, except on account of its bulk; perhaps he may suffer occasionally from flatulence or constipation, and occasional intestinal irritation; but the bowel can be readily reduced by the hand, and, indeed, in many cases it goes back without any pressure if the patient merely lies down on his back. Persons afflicted with hernia cannot be too careful with regard to the state of their bowels. Constipation is to be avoided above all things; and for this purpose the bowels should be kept gently open, by means of some slight laxative, if they are inclined to be sluggish; but violent purgatives should be avoided, as they may give rise to great irritation in the intestinal canal. When the milder laxatives fail in opening the bowels, recourse should be had to enemata, by which means we generally succeed in obtaining a free evacuation. Whenever a hernia is discovered, it should be immediately reduced, and a well fitted truss applied, for the wearing a truss is the only way to prevent further protrusion; and when applied early, and continued for some years, has even succeeded in effecting a permanent cure from its pressure causing condensation of the tissues over the opening through which the hernia had protruded. This, however, can seldom be expected, except in young persons. In general the truss requires to be worn for life; for however little uneasiness a rupture may produce, the patient can never be certain that things will remain in that state, unless the parts be kept continually reduced, otherwise they are liable to suffer from external injury, or from fresh portions of gut being protruded, distending the sac, and giving rise to constriction and strangulation of its contents; and therefore a person afflicted with this disease should be cautious in his diet, guard against constipation, and avoid all violent exertions as much as possible.

Symptoms of Strangulated Rupture. When, from any of the causes which we have already enumerated, an old rupture becomes strangulated, or, from violent exertion, rupture and strangulation occur simultaneously, the symptoms which take place are too marked and violent to be overlooked by any one, and if not speedily removed, will terminate in a painful death. The tumour becomes tense and painful; the integuments over it are often red and glistening; the pain is increased on pressure; and though it extends over the whole abdomen, is always most severe towards the neck of the swelling. Sickness and retching soon follow. Perhaps at first there is a scanty evacuation from the bowels, but after this there is obstinate constipation; the patient becomes languid; his countenance assumes an anxious contracted appearance; the circulation is hurried; the pulse beats hard and wiry; pain and heat in the rupture and over the belly generally, increase, and the latter becomes tense and hard; the pulse becomes more rapid, and there is great restlessness and anxiety. Feculent vomiting takes place, the fæces being gulped up in large quantities with great distress, mixed with vitiated bile and mucus; in fact the action of the bowels above the constricted part is inverted, and their contents are vomited. Hiccup comes on;

the extremities become cold; the pulse is fluttering and weak; the body is covered with cold perspiration; the countenance sinks and acquires a livid hue; the pain in tumour abates suddenly, and the tumour is felt flaccid, or has a crackling feel to the finger when touched; at this period feculent evacuation may occur with apparent relief; but mortification has occurred, and the patient soon becomes insensible, and dies.

We have been thus particular in describing the symptoms of this formidable disease, not for the purpose of preparing our readers to treat it, but to impress upon them the necessity of obtaining immediate surgical assistance, for in no disease is it more imperative; for an operation under these circumstances is indispensable if the tumour cannot be reduced by the hand; and if this operation be needlessly delayed from the fears of the patient, or the obstinacy of the ignorant amongst his friends and neighbours, the time will soon pass when it would be useful. It has been well said, by a late eminent surgeon, that he never had to regret operating too early in this disease; but that he had seen many valuable lives sacrificed by delay. But supposing that the surgeon lives at a distance, something may be done whilst he is sent for. The patient may be placed in a warm bath till he becomes faint, and then reduction by the hand may be attempted whilst he is in that condition; or if young and previously healthy, he may be bled to fainting by making a large orifice in the vein, so as to allow the blood to flow freely and quickly, whilst, at the same time, cold is applied to the tumour, and reduction gently but continuously attempted: no forcible pressure on the part is admissible. A common enema may be given; and if there be troublesome hiccup in the first stage, an opiate may be given by the mouth, and a heated turpentine rag applied to the pit of the stomach; but here all unprofessional aid should cease; and if, on the arrival of the surgeon, the hernia still resist the measures employed, the operation for dividing the stricture round the neck of the swelling should at once be submitted to when advised. This operation, in good hands, is neither very painful or dangerous. It consists in cautiously dividing the different layers of membrane covering the swelling, and then dividing the tight constricting edge of the opening through which the rupture had passed, so as to relieve the parts, and allow them to be reduced. A compress and bandage are then applied over the part, and if the operation is likely to prove successful, the bowels soon begin to act, and free evacuation takes place, whilst the vomiting and hiccup gradually cease. In some cases, however, where the operation has been delayed, the bowels have suffered so much that it is some time before they begin to act, and then an enema will be found of service if the bowels are not opened in an hour after the operation. The patient requires to be very cautious in moving; he should lie on his back; and when the bowels are moved, a bed-pan should be placed under him, and he should place his hand over the compress so as to afford support to the parts, for fear of a fresh descent of the bowel, and this should be done when coughing or when making the slightest exertion. The diet should be very light for some days, and the surgeon's orders strictly attended to. When the parts are sufficiently healed, a truss should be constantly worn, and the patient should avoid all violent exertion.

Rupture occurs in infants at different parts, but most generally at the navel; fortunately they are less dangerous than similar disorders in adults.

When a rupture at the navel is discovered, a round graduated compress should be placed over the part after the rupture has been reduced, and this compress is to be supported by a broad flannel roller firmly applied over it. This affords a firm support, and often effects a complete cure, by causing condensation of the tissues over the weak part, so that as the child acquires strength the tendency to rupture disappears. Indeed, ruptures in children are sometimes cured by the natural increase of size and strength of the body, if the bowels be attended to, and by the daily use of the cold bath, but the bandage and compress afford the surest means, and may be combined with the others. The late professor Hamilton was of opinion, that no truss should be worn for at least the first two years of life.

RUSH NUT, the root of the *Cyprus esculentus*. This is a favourite article of diet in some parts of Italy, of which country the plant is a native. It is not only a substitute for the chestnut, but more delicately and pleasantly tasted than that nut. Some British travellers have refused it, believing it to be deleterious; but we can assure them that there is no necessity for starving where a dish of rush nut can be procured; and that it is not only safe, but, when properly prepared, an agreeable article of diet. It might be introduced into Britain with little trouble.

RYE, or *Secale Cereale;* a species of grain, generally considered, in temperate climates, next in value to wheat. It is a grass, from four to six feet high, with a fibrous annual root, producing one or several slender culms, which are provided at their articulations with linear and smooth leaves; the flowers are greenish, disposed in a terminal simple compressed spike, four or five inches in length. It is supposed to have been brought originally from the Levant, but has been cultivated in Europe from a very ancient period. Of all domestic plants, it has

been the least altered by cultivation, and no permanent variety has been produced. It is the only species of the genus. Rye succeeds better in cold climates than wheat, grows in a greater variety of soils, resists severe frosts better, and arrives at maturity sooner. All soils will produce rye, provided they are not too moist; and many barren lands, which are unsuitable for the cultivation of wheat, may be sown with this grain to advantage. The time of sowing is earlier than with any other grain. It does not require so much attention during its growth as wheat, and the ripening varies according as the season is more or less warm and favourable, from the first of July to the last of the month; but, in general, it precedes wheat by fifteen or twenty days. In some countries, it is customary to sow in March; but it rarely produces so well as when sown before the setting in of the winter. In many places, it is cultivated only for fodder, which is an excellent plan, as cattle are often in want of green food in the early spring. Rye is the principal sustenance in the greater part of the north of Europe, and, after wheat, nourishes the greatest portion of the population of that continent. Even in more than half of France, rye bread, either pure or mixed with wheat in equal proportions, is the only kind to be procured. Rye bread is not so nutritious as wheat, but has more flavour. The farina, or meal, differs from that of the latter in containing a much smaller proportion of gluten. In the north, the greater part of the ardent spirits is distilled from rye. The straw is long, flexible, and does not rot so easily as that of other grain; it is used by brick-makers and collar-manufacturers, and is considered an excellent material for the thatching of cottages and barns. Rye is but little cultivated in Great Britain.

Ergot is an elongated, cylindrical excrescence, a little curved, and somewhat resembling a horn, which sometimes takes the place of the grain in several cultivated grasses, particularly in rye, which when in this state, is commonly called spurred rye. It has been considered by some authors as a disease, by others as a fungus, and has been referred by the latter to the genus *sclerotium*. A grain, when attacked, becomes at first soft and pulpy, afterwards hardens, and elongates gradually; when young, it is red or violaceous, afterwards lead coloured, and finally black, with a white interior; generally two or three grains in a spike only are affected: wet weather is favourable to its development. When bread containing this substance has been eaten, it has produced very formidable consequences —sometimes gangrene of the extremities and death. Ergot is an important article in *materia medica*; has been found capable of exerting a very powerful and specific action upon the uterus, and is administered in small doses in certain extreme cases. This remedy has been principally used in America. Of late, it has been successfully employed in France.

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SABINE, or *Juniperus Sabina*. Common or barren savine tree. Savine is a native of the south of Europe and the Levant; it has long been cultivated in our gardens, and from producing male and female flowers on separate plants, it was formerly distinguished into the barren and berry-bearing savine.

The leaves and tops of this plant have a moderately strong smell of the disagreeable kind, and a hot bitterish acrid taste. They give out a great part of their active matter to watery liquors, and the whole to rectified spirit; distilled with water, they yield a large quantity of essential oil. Decoctions of the leaves, freed from the volatile principle by inspissation to the consistence of an extract, retain a considerable share of their pungency and warmth along with their bitterness, and have some degree of smell, but not resembling that of the plant itself. On inspissating the spirituous tincture, there remains an extract consisting of two distinct substances, of which one is yellow, unctuous or oily, bitterish and very pungent; the other black, resinous, less pungent, and sub-astringent. Savine is a powerful and active medicine, and has long been reputed the most efficacious in the materia medica for producing a determination to the uterus, and thereby proving emmenagogue; it heats and stimulates the whole system very considerably, and is said to promote the fluid secretions. "The power which this plant possesses," (observes Dr Woodville,) "in opening uterine obstructions, is considered to be so great, that we are told it has been frequently employed, and with too much success, for purposes the most infamous and unnatural." It seems probable, however, that its effects in this way have been somewhat over-rated, as it is found very

frequently to fail as an emmenagogue, though this in some measure may be ascribed to the smallness of the dose in which it has been usually prescribed by physicians; for Dr Cullen observes, "that savine is a very acrid and heating substance, and I have been often, on account of these qualities, prevented from employing it in the quantity necessary to render it emmenagogue. I must own, however, that it shows a more powerful determination to the uterus than any other plant I have employed; but I have been frequently disappointed in this, and its heating qualities always require a great deal of caution." Dr Home appears to have had very great success with this medicine, for in five cases of amenorrhœa which occurred at the Royal Infirmary of Edinburgh, four were cured by the sabine, which he gave in powder from a scruple to a dram twice a-day. He says it is well suited to the debile, but improper in plethoric habits, and therefore orders repeated bleedings before its exhibition. Country people give the juice from the leaves and young tops of savine, mixed with milk, to their children, in order to destroy the worms; it generally operates by stool, and brings them away with it. The leaves cut small and given to horses, mixed with their corn, destroy the bots. Externally, savine is recommended as an escharotic to foul ulcers, syphilitic warts, &c. A strong decoction of the plant in lard and wax, forms an useful ointment to keep up a constant discharge from blisters, &c. *Hooper*. For the method of preparing sabine ointment, see *Domestic Pharmacopeia* at the end of this work.

SAFFRON. The true saffron (*crocus sativus*) is a low, ornamental plant, with grass-like leaves, and large lily-shaped flowers, inhabiting the European continent, and frequently cultivated for the sake of the yellow stigmas, which were formerly much employed in medicine, domestic economy, and the arts; now they are used by painters and dyers; also in cookery and confectionary. The bulbs are planted in rows six inches apart, and three from bulb to bulb, in a well pulverized soil, not poor, nor a very stiff clay, and in the month of July. The flowers are collected in September, and the yellow stigmas, and part of the style, are picked out and dried on a kiln, between layers of paper, and under the pressure of a thick board, to form the mass into cakes. Two pounds of dried cake is the average crop of an acre, after the first planting, and twenty-four pounds for the two next years. After the third crop, the roots are taken up, divided, and transplanted. Other species of crocus are often cultivated in gardens, on account of the brilliancy of their flowers, and the early season at which they flower. The term *saffron* is often applied to the *carthamus tinctorius*, a large thistle-like plant, with orange-coloured flowers, belonging to the family *compositæ*. The root is perennial, but the stem herbaceous. It is said to have been originally brought from the East, but is now naturalized in many parts of Europe, and is, besides, extensively cultivated. The flowers are used by the Chinese, to communicate some of the fine rose, scarlet, purple, and violet colours to their silks; for this purpose the flowers are thrown into an infusion of some alkali, and left to macerate; the colours are afterwards drawn out by the addition of lemon juice in various proportions, or of any other vegetable acid. Great quantities of these flowers are annually imported into Britain, for dyeing and painting. In Spain, they are used to colour soups, olives, and other dishes. The Jews in Poland are remarkably fond of it, and mix it with their bread and most of their viands. In Germany, it is cultivated in a light soil, well pulverized, and is sown in rows about eighteen inches apart, and afterwards thinned, so as to leave three or four inches between the plants. In September the plants begin to flower, and the field is then gone over once a week for six or seven weeks, to gather the expanded florets, which are dried in a kiln, in the same manner as true saffron. The *carthamus* is sometimes used for culinary purposes, under the impression that it is the true saffron, but, if in too great quantities, communicates a purgative quality.

SAFFRON, Meadow. See *Meadow Saffron*.

SAGAPANUM, sometimes called *Gum Sagapanum*, is a gum resin, or a concrete gummy resinous juice brought from Alexandria, and is composed of gum resin and essential oil. It is imported in small agglutinated masses of a yellow colour, and paler internally, tenacious, and of a horny clearness of fracture. Its taste is hot and biting; its odour of the alliaceous and fœtid kind; and its virtues similar to those of assafœtida, but weaker. It, however, possesses antispasmodic and emmenagogue properties, and is used in hysteria and chlorosis in the form of pills, in doses of from ten grains to a scruple twice a day. It used to be a greater favourite with the faculty than at present, and the only officinal preparation into which it now enters, is the compound galbanum pill.

SAGE or *Salvia*. This genus differs from the majority of labiate plants in having but two stamens, instead of four. More than two hundred species are known, which are herbaceous or shrubby, with opposite leaves, and flowers also opposite, or more frequently, verticillate, forming spikes at the extremities of the stems and branches. The garden sage (*S. Officinalis*) was formerly in great repute as a sudorific, aromatic, astringent, and antiseptic. It possesses stimulant properties in a high degree, is tonic and stomachic; the odour is strong, aromatic, and agreeable; the taste bitter, pungent, and

somewhat resembling camphor, which substance, indeed, is contained in the plant. The leaves are often employed in seasoning dishes, especially in the south of Europe. The Chinese esteem this plant very highly, and use it as a tonic for strengthening the stomach, often giving it the preference to their own tea.

SAGO PALM or *Sagus Rumphii*, a low species of palm, found wild in the East Indies. The trunk is upright, and is crowned at the summit with a tuft of pinnated leaves, composed of very numerous, long, narrow, pointed smooth leaflets. The fruit is about as large as a pullet's egg, covered with shining scales, and is edible. The trunk contains a farinaceous pith, which is a very wholesome aliment: sago is made from it, as from that of most other palms. For this purpose, the pith is taken out, bruised in a mortar, and put into a cloth or strainer: it is then held over a trough, and, water being poured in, the pith is washed through the cloth into the trough below: the water being then drawn off, the sago is taken out and dried for use or transportation. It is highly esteemed as an article of food. The preparation of sago, under different forms, constitutes a principal source of employment to the inhabitants of many parts of the coast of Malabar, and of several of the East India islands. Sago is granulated in a manner somewhat similar to that adopted in the preparation of tapioca and in this state enters into commerce.

SAINT ANTHONY'S FIRE. The vulgar name for Erysipelas or Rose. See *Erysipelas*.

SAINT VITUS' DANCE, OR CHOREA, or *Chorea Sancti Viti*. This disease is a peculiar kind of convulsion, often attended with the most irregular and ludicrous motions, as if acted to the chorus of a song, and hence its name. It has been called Saint Vitus' dance, because some devotees of Saint Vitus exercised themselves so long in dancing, that their intellects were disordered, and could only be restored by dancing again at the anniversary of Saint Vitus. By the French, it was formerly called the dance of Saint Guy; and by the Germans, the dance of Saint Weit, as it was so prevalent in Suabia and other parts of Germany, that patients crowded to Saint Weit's chapel, and who by prayers to the Saint, and offerings to the place, and priests who officiated, obtained a cure.

The convulsive motions in a fit of this disease principally affect the extremities, and generally the arm or leg of one side more than the other. The patient loses all voluntary power over the parts so as to be unable to move them in the required direction, while they are subject to a variety of spontaneous motions, which it is not in the power of the sufferer to restrain. Different parts of the body, especially the face, are subject to involuntary twitchings, and when the disease is violent, and has been of long standing, the speech becomes affected, and in some cases a total suspension of intelligible enunciation takes place, fatuity supervenes, and the patient often exhibits the same causeless emotions, such as weeping and laughing, which occur in a fit of hysteria.

The first appearance of Chorea is almost exclusively confined to young persons from eleven to sixteen years of age, and most frequently to females of a delicate habit of body, or such as have not enjoyed a regular diet, fresh air, and exercise. We have known it occur in young females who have been late in arriving at puberty, and in some cases it has been known to be completely removed by the appearance of the menses. Chorea occasionally occurs in paroxysms, or at least is more violent at some times than others, but generally its approach is gradual; first exhibiting itself in certain gestures or motions of the limbs, which seem rather objects of ridicule than of medical treatment. Sometimes, indeed, we might say, not unfrequently, the first symptom that is noticed, is a dragging of the leg in walking, similar to what is often observed in slight paralysis, and we have known this apparent dragging of the leg of which the individual was unconscious, continue after a cure. In conjunction with the more prominent symptoms, we generally find that the digestive organs are deranged, and especially the bowels are torpid. The disease is in some cases associated with, or appears to be sympathetic of, local irritation, such as that from teeth or from worms, but generally no local exciting cause is discovered to which it can be referred.

The predisposition to the disease seems to exist in a debility of the nervous system, or is constituted by an irritability of the nerves. It is even said to be disposed to disappear spontaneously at the age of puberty; but although, as in the cases we have noticed above, and others, we have seen it so disappear, yet we doubt the general correctness of this observation. The exciting causes are no doubt those we already named, irritation in the stomach and bowels, teething, mental affections, and imitation of others; and to the two last, the existence of the greater number of cases is to be attributed.

Chorea has been known to supervene upon apoplexy, and apoplexy on chorea; but when this last case occurs, it is fatal, without one recorded example of exception. The history of this disease, did our limits, or the nature of our work permit, would furnish much curious and interesting matter for physiological and general pathological speculation to the student of medicine, as well as an abundant fund of interesting facts and circumstances connected with the anthropological history of man as an individual, and the state of society in a semi-barbarous and more advanced progress of refinement, to every

class of readers. Suffice it, however, to state, that many of the unhappy individuals afflicted with chorea have been looked upon as impostors, and at no very distant day were considered the victims of satanic influence or witchcraft; and some innocent individuals have even been subjected to the most cruel death, as the suspected agents of Satan, for tormenting their fellow-creatures with this extraordinary disease.

In the course of our practice, we have met with some very interesting cases, and some astonishing and unexpected recoveries; but the regular, and at the same time ludicrous movements of that species of the disease which has been denominated *Leaping Ague* in some places in the north of Scotland, could we find language to describe them, would not be credited by those who had never witnessed the exhibition of the paroxysms. The cure of this disease has been attempted by a vast variety of means, and we have had great names to sanction almost every one of these too frequently abortive plans.

The depleting and purgative system in the commencement, as recommended by no less authority than that of Sydenham and the late Dr Hamilton of Edinburgh, a host in themselves, and backed as they are by the most experienced living practitioners, appear to us not only the most rational, but most effective mode of treating the disease. Tonics, stimulants, and narcotics have been prescribed by others, and in each case the remedies have been directed generally with little regard to the nature of individual cases, or the difference which exists between them. 'This apparent inconsistency,' says Dr Bostock, 'perhaps, depends partly upon the nature of the complaint, which, like some others of the neuroses (nervous diseases), may arise from causes that are almost diametrically opposite to each other, and yet may exhibit nearly the same symptoms.' In reflecting on the cases that have come under our own care, and those detailed by others, the plan of treatment we would recommend, is, that the state of the bowels be always the first object of attention, and that, if circumstances require, such as the patient being of a full habit, (which is not often the case,) blood-letting may be employed; and after these, the shower bath, in conjunction with a perseverance in purgatives, conjoined with the preparations of iron. These may be varied both in form and quantity every week. In order to explain the subject, and render it as plain as we possibly can to the general reader, we would order three or four days the compound infusion of senna, in such doses as would act pretty freely upon the bowels, and procure three or four, or more loose stools in the course of the day. The head should be shaven; and after the bowels have been well evacuated, the shower bath should be used daily. Six drops of the tincture of ammoniated iron may be given in a wine glass of cold water three times a day, gradually increasing the dose three drops every day, until sixty drops are taken in the course of the day, that is, twenty for a dose. While this is going on, a fourth part of the following mixture is to be taken every night at bed time.

Simple infusion of Senna, four ounces.
Tincture of Jalap,
Syrup of Ginger, each one ounce. Mix.

The fourth of this mixture, or less or more, according to the age of the patient, would keep the bowels in a lax state, and is at the same time so agreeable, that no patient would refuse it. If the patient proved very restless during the night, the assafœtida enema, with such a dose of laudanum as is suited to the age and strength of the patient, should be administered at bed-time. In no case, however, would we recommend introducing opiates into the stomach.

After the use of the above purgative mixture for ten or twelve days, we should substitute as a purgative two pills every night at bed-time, each pill containing three grains of compound extract of colocynth, and two grains of the mass of the mercurial or blue-pill. The ammoniated iron tincture we would supersede by six grains of precipitated carbonate of iron, in a dessert spoonful of treacle three times a day, increasing the quantity six grains every day, until three drams were taken as a dose. Once every week, immediately after the daily shower bath and dry friction, the skin should be sponged with capsicum vinegar, and afterwards patted dry with a soft towel.

This shifting or changing the medicine we have persevered in, with success, in some apparently hopeless cases. The removal of the patient is, however, one of the most powerful means of checking, changing, or mitigating the paroxysms. If the appetite be defective we should administer stomachics, and if the system exhibited marks of general weakness, we would then employ tonics and stimulants; but neither of these is ever likely to be the case when the preceding treatment is adopted. Less advantage will be found from the use of opium, and other narcotic and sedative remedies, than the nature and symptoms of the disease might lead us to expect; but when they are used, most relief will be found from them in the form of enema.

Blisters applied to the origin of the nerves which supply the affected part, especially to the different regions of the spine, has been found a useful practice as well as stimulating, spunging, and friction in the course of the spine with the capsicum vinegar, or Chili vinegar. We have no confidence in mercury carried so far as to affect the system, although as an alterative, in combination with the colocynth pill, it is calculated to do good, and we have as little faith in the efficacy of electricity, which has

been by some physicians so highly recommended in chorea.

There is one advice which we wish to impress upon parents and domestic practitioners, and that is, when any convulsive twitches appear, or those contortions of the face, already described, that the teeth, and indeed the whole body, be examined, to discover if there be any cause of local irritation to the nerves. Tumours in the neck, and in some other parts of the body, frequently occasion the most powerful symptoms of chorea, or what has been denominated neuralgic diseases. It is certainly one comfort that this disease, unless supervening on apoplexy, seldom proves fatal. But death we should consider preferable to fatuity, or that state of mental abstraction which parents, friends, and relations are often doomed to see their children or their connections endure.

Although the cure of this disease is often attempted by quacks and illiterate persons who pretend to possess a charm or incantation for its removal, we feel assured that the more sensible and intelligent will have recourse to the best advice and the most experienced physician. We have given something like an outline of the character of the disease, and the mode of treatment. In a case like this it is difficult to select where every kind and variety of medicine from *arsenic and belladona* down to electricity, and *cod liver oil* has been recommended as means of cure. Unwilling, however, to omit any thing that presents even a chance of emancipation to a fellow-creature from such a train of evils as are involved in a confirmed case of chorea, we take the liberty of introducing to our readers a *new American remedy* for chorea, viz., *the black snake root* or the *cimicefuga racemosa*, by Dr Jesse Young of Pennsylvania.

The root of this plant, which is the only part used in medicine, according to Mr Fitzman, is composed of a fatty matter, gum, fæcula, resin, tannin, wax, gallic acid, sugar oil, a black colouring matter, a green colouring matter, lignine, salts of potass, lime, magnesia, and iron. A plant of such constituents would certainly prepossess us in its favour, and we should conclude that it certainly deserved particular investigation. The remedy was obtained from an old lady, who directed the powder to be used a teaspoonful three successive mornings, then omitted for three others, and thus to be given three mornings alternately until it has been administered nine times. The Doctor narrates about four cases in which he considers it proved effectual. Its *modus operandi*, or in other words, the peculiar mode by which it effects a cure, are not yet known. The following remarks, in which there is much truth, and the sentiments of general application, we deem worthy of notice:

'The idea,' says Dr Young, 'of the knowledge of its efficacy being derived from an *old woman*, should not, in my estimation, operate against the article so far as to prevent its having a fair trial. I believe the old lady was not a *professed doctress*, but if she were, the knowledge of it proving valuable is none the worse for coming from such a source. What physician has not and does not derive many ideas from old women which are in reality practically valuable? And it cannot but be acknowledged from such sources, and from mere accident, the knowledge of many of our most valuable remedies have been derived which are now engrafted into, and form a part of the general stock of, the science of our profession. If I know my own mind I am not very fond of, nor very prone to quackery, and although I freely confess this article was used without any knowledge whatever of its *modus operandi*, or without knowing what to expect of it other than probably a cure, it did not disappoint the latter expectation, and I now feel sufficient confidence in it to try it again if opportunity occurs, and to hope that others will do likewise. If this be quackery, and it be justifiable in any case, it may be so when applied to the investigation of the properties of our indigenous vegetables; but it is not, else the therapeutic part of our profession has scarcely any other foundation to rest upon than a grand system of empiricism, for the history of almost all the materia medica shows that from such sources have been derived our most valuable agents. The investigation of the medical properties of our vegetable substances, then, should rather be considered laudable, when directed with the view of enlarging the boundaries of our knowledge, and thus adding to our resources, than condemned, forsooth, because they may have been the suggestions of vulgar ignorance, or even of empirical experiments, rather than the recondite inquiries of professional erudition. But neither *a priori* reasoning, nor professional erudition, can ever direct us to the peculiar properties or effects of any of our vegetable productions; they can only become known from repeated trials or experiments.'

We thank Dr Young for the defence of principles we have long contended for. Indeed, they required no support, even from an American Esculapius; but it cannot be concealed, that notwithstanding the rapid and extensive inroads that liberal and enlightened principles (such as those advocated by Dr Young) have made among the medical profession, there are yet a considerable class, even among the younger members, who consider it derogatory to receive a fact in medical experience from an old lady. These, however, are false and unfounded opinions, and are not even deserving the passing notice taken of them by our Transatlantic friend, of whose success in the cure of chorea, and his growing confidence in the efficacy of the

black snake root, we shall be always happy to hear.

SALADS. Salads are composed of the leaves and stalks of certain vegetables mixed together, and prepared in general with oil, vinegar, and mustard, and a proportion of salt. The vegetables generally used are the lettuce, celery, water-cress, and occasionally beet-root. Salads are eaten as a condiment, not as an article of aliment; they are useful in moderating the excitement of the system which would be produced by a diet composed entirely of animal food, particularly in warm seasons, and they are very effective as antiscorbutics. Salads, however, should be used in moderation, and are unfit for the diet of dyspeptic patients.

SALEP is obtained from the tuberous roots of one or more species of orchis, and is usually imported from Turkey and other parts of the Levant; though it may prepared in any part of Europe, from many common species of orchis. The process consists simply in washing the roots, and rubbing off the brown skin, when they are dried, and afterwards ground into powder. This powder, as an article of diet, is esteemed highly nutritious, containing a great quantity of farinaceous matter in a small bulk. The roots are dug up as soon as the flower stalks begin to decay, and the newly formed bulbs, which have then attained their perfect state, are separated. An ounce of this powder and an ounce of portable soup, dissolved in two quarts of boiling water, will form a jelly capable of affording sustenance to a man for a day; consequently, it is of great use in long voyages, or travels by land.

SALIVA; the fluid which is secreted by the salivary glands into the cavity of the mouth. The secretory organ is composed of three pair of salivary glands. The saliva is continually swallowed with or without masticated food, and some is also spit out. It has no colour nor smell: it is tasteless, although it contains a little salt, to which the nerves of the tongue are accustomed. Its specific gravity is somewhat greater than that of water. The quantity of twelve pounds is supposed to be secreted in twelve hours. During mastication and speaking, the secretion is augmented, from the mechanical pressure of the muscles upon the salivary glands. Those who are hungry secrete a great quantity, from the sight of agreeable food. It assists the spirituous fermentation of farinaceous substances; hence barbarous nations prepare an inebriating drink from chewed roots. Saliva appears to consist, in a healthy state of the body, of water, which constitutes at least four-fifths of its bulk, mucilage, albumen, and saline substances. The use of the saliva is, 1. It augments the taste of the food, by the evolution of sapid matter. 2. During mastication, it mixes with, dissolves, and resolves into its principles, the food, and changes it into a pultaceous mass, fit to be swallowed; hence it commences chymification. 3. It moderates thirst, by moistening the cavity of the mouth and fauces.

SALIVATION. A term employed in medical language to denote the increased secretion of saliva caused by the action of mercurials and other medicines on the system. When mercury has been given so as to affect the constitution, the breath becomes fetid, and the gums and salivary glands begin to swell and feel painful, and this gradually increases until a profuse flow of saliva commences; if the medicine is continued, the tongue swells, and the flow of saliva becomes more profuse. This effect of mercury on the system is produced, however that mineral may be exhibited, whether given internally, or rubbed in through the skin, and is held to be the sign that the mercury is exerting its peculiar action on the constitution. It is not long since it was deemed absolutely necessary, in some diseases, to carry this process of salivation to such an extent, that patients were not considered safe, unless they spit some pounds of saliva in the course of the day, and the consequence of this absurd and mischievous practice was, that many patients died from the extreme debility produced by the effect of the remedy, whilst those who recovered not unfrequently dragged out a life of misery, their constitutions being irretrievably ruined by the abuse of the medicine. So much was this the case that the medical profession have now almost run into the opposite extreme, and many altogether condemn using it to affect the system; this is equally absurd, for there can be little doubt of its efficacy in many cases if properly employed. In using mercury so as to affect the system, we should watch its effects narrowly, and whenever we find the breath beginning to be fetid, and the gums slightly tender, the medicine should be discontinued. When severe salivation has taken place, gargles of alum or borax should be used as a local application to the mouth, and gentle laxatives administered to allay the general irritation, together with the use of slight diaphoretics, and compound decoction of sarsaparilla. If the constitutional irritation is excessive, opiates must be exhibited, and the best is the Dover's powder in small doses. Great care is necessary to guard against exposure to cold during salivation, as otherwise there is great risk of inflammatory swelling of the glands, and inflammation of the covering of the bones, or what is termed periostitis.

SALMON is a rich and very nutritive fish, but as it is of an oily and heating nature it is not easy of digestion, and therefore should be eaten of very sparingly, even by persons in good health; and it is highly improper as an article of diet for dyspeptics.

SALT, MURIATE OF SODA, OR COM-

MON SALT; is the simplest, the best, and the most universally used condiment. When taken in moderation it seems to assist digestion by acting as a gentle stimulant to the stomach; some have supposed it also acts as a chemical agent on the food; some singular cases are related where softening of the bones seemed to have arisen from the immoderate use of common salt. See *Rickets*.

SALT. This term was originally employed to denote *common salt*, but was afterwards generalized by chemists, and employed by them in a very extensive and not very definite sense. They understood by it any body which is sapid, easily melted, soluble in water, and not combustible; or a class of substances midway between earths and water. Many disputes arose concerning what bodies ought to be comprehended under the designation, and what ought to be excluded. Acids and alkalies were allowed by all to be salts; but the difficulty was, to determine respecting earths and metals; for several of the earths possess all the properties which have been ascribed to salts, and the metals are capable of entering into combinations which possess saline properties. In process of time, however, the term *salt* was restricted to three classes of bodies, viz., *acids*, *alkalies*, and the *compounds* which acids form with alkalies, earths, and metallic oxides. The two first of these classes were called *simple salts*; the salts belonging to the third class were called *compound* or *neutral*. This last appellation originated from an opinion long entertained by chemists, that acids and alkalies, of which the salts are composed were of a contrary nature, and that they counteracted one another; so that the resulting compounds possessed neither the properties of acids nor of alkalies, but properties intermediate between the two.

Chemists have lately restricted the term *salt* still more, by tacitly excluding acids and alkalies from the class of salts altogether. At present, then, it denotes only the compounds formed by the combination of acids with alkalies, earths, and metallic oxides, which are technically called *bases*. When the proportions of the constituents are so adjusted that the resulting substance does not affect the colour of infusion of litmus, or red cabbage, it is then called a *neutral salt*. When the predominance of acid is evinced by the reddening of these infusions, the salt is said to be acidulous, and the prefix *super*, or *bi*, is used to indicate this excess of acid. If, on the contrary, the acid matter appears to be in defect, or short of the quantity necessary for neutralizing the alkalinity of the base, the salt is then said to be with excess of base, and the prefix *sub* is attached to it name.

In the British chemical schools, it is now common to classify the salts in the following orders:

Order 1st. The oxy-salts. This order includes no salt in which the acid or base, is not an oxydised body. A curious law was observed, by Gay Lussac, to obtain among the salts of this order. Since all the powerful akaline bases, with the exception of ammonia, are protoxides of an electro-positive metal, one equivalent of an acid will combine with one equivalent of such a base, and form with it a neutral salt. Now, if we divide the order into families, arranged according to the acid, as sulphates, nitrates, &c., it follows that in each family the oxygen of the salt must bear a constant ratio to the oxygen of the base; thus, since one equivalent of sulphuric acid contains three atoms of oxygen, and one equivalent of nitric acid five, we have the ratio of the oxygen of the acid to the base in the neutral proto-sulphates as three to one, and in the neutral proto-nitrates as five to one. Should the base pass into a higher state of oxidation, as to the state of binoxide, then will it be disposed to unite with two equivalents of the acid, that is, twice the quantity of oxygen forming a bi-salt, still preserving the same ratio of oxygen as in the proto-salts of the same acid and base. This order of salts comprehends the sulphates, double sulphates, sulphites, hyposulphites, hyposulphates, nitrates, nitrites, chlorates, iodates, phosphates, pyrophosphates, metaphosphates, arseniates, chromates, borates, and carbonates.

Order 2nd. The hydro-salts. This order includes no salt the acid or base of which does not contain hydrogen. In this order the hydrochlorides are not included, since the action of the hydrochloric acid acts upon metals and oxides of metals through the agency of the chlorine. The same remark holds with the hydriodic and other hydracids. The only salts included in this order are in fact compounds of the hydracids with ammonia and phosphuretted hydrogen. In some other salts where hydracids are found, the hydracid acts rather as an electro-positive ingredient or base than as an acid, and such salts are therefore placed under a different order.

Order 3d. Sulphuric salts. This order includes no salt, the electro-positive or negative ingredient of which is not a sulphuret. The salts of this order are double sulphurets, such as the hydrosulphurets of potassium, sodium, calcium, &c.

Order 4th. The haloid salts. This order includes no salt the electropositive or negative ingredient of which is not *haloidal*. The salts of this order are double salts, and one or other of the ingredients must be analogous to sea salt, such as the hydrogochlorides, aurochlorides, oxychlorides, double iodides, silica fluorides, &c.

As almost every acid unites with every base, and sometimes in several proportions, it follows that the number of salts must be immense. Several thousands are already known, although

not above thirty were believed to exist fifty years ago. The early names of the salts so far as these bodies were known to chemists, were wholly destitute of scientific precision. At present, however, they are universally designated according to the nomenclature of Morveau. The name of each salt consists mainly of two words, one generic, the other specific. The generic word precedes the specific, and is derived from the acid; the specific comes from the base. For example, a salt consisting of *sulphuric acid* and *soda*, is spoken of generically under the name of a *sulphate*, and specifically, by adding the name of the base; thus *sulphate of soda*. The termination *ate* corresponds with the acid whose termination is in *ic*, and the termination *ite* with the acid whose termination is in *ous*; thus *sulphuric* acid gives *sulphates*; *sulphurous* acid, *sulphites*. There are some acids containing less oxygen than those that terminate in *ous*: in such case, the word *hypo* is prefixed; thus we have *hypo*-sulphurous acid, *hypo*-nitrous acid, giving also salts that are called *hypo*-sulphites, and *hypo*-nitrites. When the salt is a compound of one atom, or proportional of acid with one of base, it is distinguished simply by the words denoting the acid and the base, without the addition of any prefix. If the salt contains *two* atoms of acid united to *one* atom of base, the Latin numeral adverb *bis* or *bi* is prefixed. Thus *bisulphate of potash* is a salt composed of two atoms sulphuric acid and one atom potash. Were there three, four, &c., atoms acids, the numeral adverbs *ter*, *quater*, &c., would be prefixed. Thus *quater-oxalate of potash* means a compound of four atoms oxalic acid and one atom of potash. When two atoms of base are combined with one atom of acid, this is denoted by prefixing the Greek numeral adverb *dis*. Thus *diphosphate of potash* means a compound of two atoms potash with one atom phosphoric acid. The prefixes *tris*, *tetrakis*, &c., indicate three, four, &c., atoms of base with one atom of acid. Salts of this description were formerly termed *sub-salts*; at least in those instances where an alkaline reaction was produced upon test-liquors from the excess of base.

We have stated above that salts are at present understood to be compounds only of acids and bases. The discoveries of Sir H. Davy, however, require us to modify this generally received definition. Many bodies, such as common salt and muriate of lime, to which the appellation of *salt* cannot be refused, have not been proved to contain either acid or alkaline matter, but must, according to the strict logic of chemistry, be regarded as compounds of chlorine with metals. Such compounds, possessing, for the most part, the properties of solubility in water, and sapidity, are to be included under the general name of salts. They are denominated *chloris*, *iodides*, *bromides*, of the metals, according to the particular constitution of each. Thus the compound of chlorine and calcium, formerly known as muriate of lime, is called the *chloride* of calcium. The solubility of salts in water is their most important general quality. In this menstruum they are generally crystallized; and by its agency they are purified and separated from one another, in the inverse order of the solubility. The determination of the quantity of salt which water can dissolve, is not a very difficult process. It consists in saturating the water exactly with the salt, whose solubility we wish to know, at a determinate temperature, weighing out a certain quantity of that solution, evaporating it, and weighing the saline residue. We shall give the results of some experiments upon the solubility of a few salts.

Sulphate of Soda.

Temperature.	*Salt soluble in* 100 *parts of water.* Anhydrous.	Crystallized.
0,00°	5,02	12,17
11,97	10,12	26,38
17,91	16,73	48,28
28,76	37,35	161,53
30,75	43,05	215,77
32,73	50,65	322,12
40,15	48,78	291,44
50,40	46,82	262,35
59,79	45,42	
70,61	44,35	
84,42	42,96	
103,17	42 65	

Hence it appears that the solubility of sulphate of soda follows a very singular law. After having increased rapidly to about the temperature of 33°, where it is at its maximum, it diminishes to 103,17°; and at that point it is nearly the same as at 30,5°

Solubility of Chloride of Potassium.

Temperature.	Salt dissolved in 100 water.
15,64°	43,50
49,31	55,63
74,89	65.51
105,48	77,89

Solubility of Chloride of Sodium (common salt).

Temperature.	Salt dissolved in 100 water.
13,89°	35,81
16.90	35,88
59,93	37,14
109,73	40,38

Solubility of Sulphate of Magnesia (Epsom salt).

Temperature.	Salt dissolved in 100 water.
14,58°	103,69
39,86	78,34
49,08	212,61
64,35	295,13
97,03	644,44

Solubility of Nitrite of Potash (Nitre).

Temperature.	Salt dissolved in 100 water.	Temperature.	Salt dissolved in 100 water.
0,00°	13,32	45,10	74,66
5,01	16,72	54,72	97,05
11,67	22,23	65,45	125,42
17,91	29,31	79,72	169,27
24,94	38,40	97,66	236,45
35,13	54,82		

For the chemical, natural, historical, and economical history of the most important salts, see the articles upon their respective bases, as *Lime*, *Soda*, &c.

SAMPHIRE. A plant which grows on the rocks, and on the sea coast of several parts of Great Britain. It has a peculiar aromatic flavour, and when pickled is much esteemed as a condiment.

SANGUINEOUS; bloody; appertaining to the blood. Applied to certain conditions of the body and diseases, and to the appearances of the solids and fluids. Thus we speak of a sanguineous temperament, a sanguineous discharge, a sanguineous apoplexy.

SANIES. A term applied to denote a thin, ill-conditioned, and slightly bloody discharge from any sore or wound.

SARCOCELE. This term is used in surgery, to denote a disease of the testicle, in which the body of the gland is enlarged, and altered in structure so as to feel hard and fleshy to the touch, instead of the soft vascular pulpy substance which it is naturally.

There are a great many varieties of this disease described by surgical writers; but we shall confine ourselves to a brief account of the disease in its most common forms. It is one of those diseases which should never be treated except by a skilful surgeon. There is hardly any disease which is subject to greater variety than sarcocele, both as regards its manner of commencing, and the changes which it sometimes undergoes.

Sometimes its first appearance is merely simple enlargement of the body of the gland, with hardening of its substance, without much, or sometimes even without any pain, and perfectly smooth on the surface, producing little uneasiness, except from the inconvenience caused by its weight and size. In some persons it may remain long in this quiescent state without any visible alteration taking place; sooner or later, however, the surface becomes knotty and unequal, some points feeling soft and pulpy, whilst others are of a gristly hardness; there are then darting, lancinating pains, shooting from the part up to the loins, and this may continue for a length of time, without any breach of the integuments. In some cases, however, ulceration occurs, and fungous tumour protrudes, and then the general health becomes more and more affected. In some cases, the disease does not extend rapidly towards the chord, whilst in others it is affected very early in the disease.

In this disease, the use of iodine may be tried at first, and the state of the urethra and the general health attended to; but the disease must be carefully watched, and if it does not readily yield, or, indeed, whenever the true nature of the disease is ascertained (for simple chronic enlargement of the testicle is by no means uncommon, and does not require removal) no time should be lost in removing the diseased testicle, unless that be contra-indicated by a similar disease internally, or contamination of the inguinal glands.

SARDONIC LAUGH (*Risus Sardonicus*). So named from the herb sardonia, which being eaten, is said to cause a deadly convulsive laughter. The term is applied to denote a kind of spasmodic grin caused by the convulsive action of the diaphragm, and in other parts, occurring as a closing symptom to several fatal diseases.

SARSAPARILLA, or *Smilax Sarsaparilla*. The root of this plant is the part used in medicine. It is fibrous, of a blackish colour externally, and white within; about the thickness of a goose quill, flexible, and composed of a very small woody heart. It is inodorous, and has a glutinous, bitterish, but not ungrateful taste. The roots, when dug up, consist of a great number of long fibres hanging from one head, and the long roots are the only parts that should be made use of. The root, however, is seldom met with in this state in the shops, being incised or cut, and too frequently mixed with other twigs and roots bearing a strong resemblance to it. The inferior kinds are in general thicker, of a paler colour on the outside, and less white within, with a much thicker woody heart. So many spurious kinds of sarsaparilla are sold, especially in London, that Dr Ryan mentions a gentleman who purchased fourteen pounds of what was sold as the best sarsaparilla, and made that quantity into decoction, and took it for secondary syphillis without the slightest benefit; and one pound of the genuine root afterwards restored him to health. It should be known, that it is sometimes infused, and afterwards dried, and sold to those who will have cheap medicine.

Sarsaparilla is a native of the West Indies, and some quarters of America; and was first brought into Europe by the Spaniards, who represented it as a specific for the cure of *lues venerea*, and likewise of several obstinate chronic disorders. This was a higher character than the root deserved, and because it was found unequal to the task of curing confirmed lues venerea, it was for some time cast aside. Experience, however, has since proved that it is highly useful in the sequel of syphillis after a mercurial course, especially when there are nocturnal pains, enlargements of the joints, and cutaneous ulcerations, remaining, both as the effects of the disease itself, or the injudicious management of the mercurial remedy. It is likewise, found beneficial in other cutaneous affections. In fine, sarsaparilla appears to have a particular action on the skin, although it does not often promote perspiration. The officinal preparations are the simple and compound decoctions, and the extract.

Decoction of Sarsaparilla.

Sarsaparilla root cut in slices, four ounces.
Boiling water, four pints.

Macerate for four hours near the fire in a slightly covered vessel, then bruise the root, and macerate again for two hours, then boil to two pints, and strain while hot.

The dose of this simple decoction is from a gill to half a pint, either alone, or mixed with sweet milk twice or thrice a-day.

Compound decoction of Sarsaparilla.

Take two pints of the preceding hot decoction.
Half an ounce of the raspings, or chips of sassafras root or wood, and the same quantity of the raspings of guiacum wood, and of bruised and sliced liquorice root, two drams.
Boil fifteen minutes, and strain.

This preparation is similar to the celebrated *Lisbon diet drink*, and is used in the same way, and the same doses as the former, viz. from a gill to half a pint three times a day, in cases such as those already mentioned. There is lately added to these a

Compound Infusion of Sarsaparilla.

Sarsaparilla cut in small slices, four ounces.
Liquorice root sliced, half an ounce.
Lime water, two pints.

Macerate for four and twenty hours in a warm place, in a tightly covered vessel, and strain.

Extract of Sarsaparilla is prepared by evaporating the strained simple decoction to the consistence of an extract. It is used in the form of pills, or dissolved in the decoction to render it stronger; but we consider it an almost inert preparation.

The Fluid Extract is prepared, by boiling down repeated decoctions, or in other words, evaporating the decoctions to the consistence of thin molasses, or syrup.

There are a great many of these concentrated fluid extracts industriously advertised by different chemists, some of them almost entirely inert, or deriving their consistence from extract of liquorice.

A vast deal of discrepancy of opinion prevails, as to the best mode of preparing sarsaparilla for use. Dr Hancock is convinced from experience, and we most heartily coincide in his opinion, that long boiling destroys the medicinal property of this powerful remedy, and that the extract is totally inert. Repeated and multiplied experience has led Dr H. to the conclusion, that infusing sarsaparilla in hot water, kept near the boiling point, is the best mode of preparation. We have, however, given above the mode of preparing the decoctions, as ordered by the colleges; but we are persuaded, from the most attentive observation, that if the same proportion of ingredients are infused for twenty-four, or even twelve hours in the same portion of water, to which the decoctions are ordered to be boiled down, that the medicine will prove more efficacious. Our duty to our readers obliged us to insert the established formula.

Burdock root is, perhaps, the best British substitute for sarsaparilla, although soap wort, elm bark, bitter sweet, and dandelion root, are not without their claims to notice in a variety of cases.

SASSAFRAS, or *Laurus Sassafras.* The wood, root, and bark of the sassafras tree, which is a native of North America, and of some of the West India islands, are all employed in medicine. The wood has a subacrid and aromatic sweetish taste, with a strong pleasant odour resembling that of fennel. The root is imported in long branched pieces, is of a rusty white colour, soft, light, and of a spongy texture. The bark is rough, of a brownish colour on the outside, and of a ferruginous colour within, spongy and divisible into layers, and of a stronger taste and smell than the wood. The virtues of sassafras depend on its essential oil; and its effects on the human body are stimulant, sudorific, and diuretic. It is used in diseases of the skin, chronic rheumatism, and as an auxiliary to decoctions of guiacum and sarsaparilla. The volatile oil is its only officinal preparation, and is limpid, yellower, and heavier than water, and is obtained by distillation from the chips. It has the fragrant odour of the wood, and is very hot and acrid, burning the lips when tasted, and possesses the virtues of the wood in a very concentrated form. The dose is from two to ten drops, rubbed with sugar and water.

The simple infusion, however, is the best preparation, and aged people suffering from chronic rheumatism frequently derive relief from using sassafras tea; and a few chips of the wood are frequently added to common tea. It is a cheap and agreeable beverage, and when China tea taken late in the evening prevents sleep, sassafras may be substituted. The bark, although possessing equal, if not superior powers, is now seldom employed.

Compound infusion of sassafras.

Sassafras raspings, two ounces.
Nutmegs bruised, three drams.
Liquorice root sliced, one ounce,
Lime water, four pints.

Macerate for twenty-four hours in a close covered vessel and strain. From two to four ounces are taken three or four times a day, in scrophulous diseases, in milk, and it is even given to children in mesenteric affections. This infusion, which is used in the Italian hospitals, and formerly held a place in our own pharmacopeias, more than likely furnished Dr O'Beirne with the idea of employing the lime water infusion of sarsaparilla.

SAUNDERS, Red, or *Santalum Rubrum.* Red saunders wood is extremely hard, of a bright garnet red colour, and bears a fine polish. The inner substance of the wood is used as a colouring drug, and the more florid red is mostly esteemed. It only gives a yellowish tint to water; but to rectified spirit a fine deep red. There are some distilled oils, such as that of lavender, which receive a red tincture from the wood itself, and from its resinous extract; but

the greater number do not. It does not yield a colour to expressed oils as the anchusa root does. It enters into the composition of the compound spirit of lavender, and was once esteemed a medicine; but it is only used for its colouring property, as it gives a fine colour to spirituous cordials at a very moderate expense.

There is another species of Santalum, viz., the *S. Citrinum* or *Yellow Saunders*, which was, and still is used on the continent in medicine, although hardly ever employed in Britain. The wood of the same plant, according to its hue of colour, is sometimes called the *S. Album* or *White Saunders*. This wood, distilled with water, yields a fragrant essential oil, which thickens in the cold into the consistence of a balsam, approaching in smell to ambergris, or a mixture of ambergris and roses.

SAXIFRAGE, or *Saxifraga Alba*, the *Saxifraga granulata* of Linnæus. White saxifrage was long a popular remedy in nephritic and gravelly disorders, and was adopted when the doctrine of signatures was in fashion, owing to the resemblance which the bulbs or tubercles of its roots bore to the small urinary calculi, or stones discharged from the bladder. Experience has, however, proved its inefficacy in these complaints, and we beg such of our readers as suffer from these disorders, not to depend upon it. Botanists well know that the bulbs or tubercles of such roots answer an important purpose in vegetation, by supplying the plants with nourishment and moisture, and thereby enabling them to resist the effects of that drought to which the dry soils they inhabit peculiarly expose them.

There is another species of saxifrage, viz., the *English* or *Meadow Saxifrage*, or the *Saxifraga Vulgaris*, the roots, leaves, and seeds of which have all been employed in the form of infusion or decoction, as aperients, diuretics, and carminatives. They may be used in the form of tea, sweetened to the taste. They are far from disagreeable either in taste or flavour, but are seldom used, as other preferable remedies are as easily procured.

SCALD. The term scald is employed to denote an injury inflicted by heated fluids. In scald, as well as in burns, the vitality of the parts injured is much impaired, and hence, when these parts become the seat of increased action, sloughing almost inevitably follows, in consequence of the debilitated state of the parts. For the same reasons, the sores which follow these injuries are indolent and tedious in healing, the granulations are pale and flabby, and the breach of surface does not heal readily. Scalds and burns are dangerous, according to the extent of surface involved, and the nature of the parts injured: thus, scalds of the trunk or genital organs are attended with much danger. When the scalded surface is extensive, the injury is always attended with much risk. The immediate effects of such extensive injuries are the usual symptoms of collapse, shivering, cold extremities, weak pulse, vomiting, &c. These symptoms require to be relieved by means of cordials, opiates, and in very bad cases even by strong stimulants, such as pure spirits, ammonia, &c. The secondary effect of scalds is extreme constitutional irritation; there is low delirium, effusion of serous fluid into the chest and abdomen, attended with difficult breathing, frequently ending in coma and death. The local applications recommended for these injuries, are so numerous and various, that it would be tedious to detail them all. If the vesications or blisters are large and unbroken when first seen, they should be punctured at several points with a small needle, so as to allow the fluid to escape without breaking the cuticle extensively, which is almost certain to happen if they are left to themselves, and which gives rise to troublesome sores and great irritation from exposure of the raw surface. The fluid being thus drawn off, the cuticle is to be laid smoothly down, to prevent it being ruffled and broken, and then rags dipt in a mixture of equal parts of olive oil and lime water, (Carron oil) are to be laid gently over the injured surface and frequently changed; or the part, after puncturing the vesications, may be dusted over with a thick layer of hair-powder or fine flour, and this last application is preferable where the raw surface is exposed from the vesications having been broken, and the cuticle torn off in removing the patient's clothes. Cloths wetted with a solution of sugar of lead, or vinegar and water, are also frequently used where the blisters are unbroken, but we prefer the Carron oil where it can be procured. The constitutional treatment is the same as that recommended in the article on burns. See *Burns*.

SCALDING. A term in common use, to express a degree of excoriation of the cuticle and irritation of the surface, from the part being frequently moistened with any acrid discharge or rubbing by the clothes. Thus, we frequently see infants suffering from scalding of the parts surrounding the genital organs, owing to these parts being frequently wetted with urine. The best treatment in such cases is, dusting the parts with some fine absorbent powder, such as fine hair-powder, flour, or tutty powder, (impure carbonate of zinc,) and occasionally bathing the parts with lukewarm water.

SCALLED HEAD. This disgusting disease commences in large soft pustules, slightly flattened with irregular margins, and slightly inflamed bases. Patches of these pustules, which are numerous, unite and form crusts or scabs, which compose a dense and continuous covering over the surface. The discharge is profuse, acrid, and offensive; vermin are often generated

in great numbers; the hair is mixed with the scabs, and the surrounding parts are excoriated. After the separation of the scabs, the surface sometimes desquamates, and becomes of natural appearance; but in other cases ulceration commences, and the glands of the face and neck frequently enlarge and suppurate. This disease, though most frequent in young persons, occurs at all ages. Even in the mildest form it is a troublesome and tedious disease, for frequently after it has appeared to be decaying, it suddenly recommences with increased virulence. During the early stage of the disease, while there is considerable irritation, the best applications are emollient poultices, or lint dipt in warm water, applied over the parts, and covered with oiled silk, and correcting the state of the constitution generally, and of the intestinal canal, which is generally disordered. This last indication to be accomplished by means of small doses of calomel or blue pill, combined with some laxative, as the compound extract of colocynth and the occasional exhibition of some saline medicine, and by giving sarsaparilla and tonic medicines, and the occasional use of the warm bath, the head should be closely shaved on the first appearance of the disease, and frequently washed with soap and warm water.

In the advanced stage, the crusts are to be removed by means of poulticing and warm fomentations, and the hair kept very short. Ointments, such as pitch ointment with sulphur, citrine ointment, or that of the iodide of sulphur, should be applied to the part. These dressings should be removed night and morning at least, and the parts well washed with soap and water.

In the last stage, when the eruption has begun to decay, the best local applications are stimulating lotion, such as solutions of lunar caustic, or solutions of the sulphates of copper or zinc.

SCALP, Injuries of. Wounds of the scalp are attended and followed by more dangerous symptoms than wounds of the integuments on any other part of the body. This is in a great measure attributable to the nature and connections of the parts. The subcutaneous fatty matter is condensed, and closely attached to a firm and unyielding tendinous expansion; and betwixt these tissues and the pericranium, a loose cellular tissue is interposed, so as to allow of free motion of the parts. They are highly vascular, with the exception of the occipito-frontalis fascia, and between them and the internal parts a free communication exists. Injuries of these coverings, though at first apparently trifling, and consequently looked upon as of no importance, and unattended with danger, often assume a very alarming character. No injury of the head is too slight to be despised, or too severe to be despaired of. Punctured and lacerated wounds, more especially those penetrating all the layers of covering, are frequently followed by violent and extensive inflammation of all the tissues, with severe constitutional disturbance, and with delirium and other symptoms denoting functional derangement of the brain. The swelling is often extensive, involving the whole scalp and the integuments of the face, and completely shutting the eyelids. In some cases resolution may be accomplished, but the most frequent termination is extensive infiltration of purulent matter into the cellular, or even into the deeper structures, with sloughing of the tendinous expansion. Collections of matter frequently form in the loose cellular tissue of the eyelids, whether the surrounding parts are affected with superficial or deep seated inflammation.

Treatment. After the infliction of an injury, the scalp ought to be shaved, and the wound cleansed of coagula and foreign substances. If a large flap of integument is detached, it should be replaced, and retained as nearly as possible in its natural situation, and if, for this latter purpose, slips of adhesive plaster and methodical compression prove insufficient, it will be necessary to employ a very few stitches; these, however, must be removed at an early period, that is, when either adhesion or suppuration has commenced, and ought, if possible, to be altogether dispensed with, being apt in this situation to produce injurious effects by their irritation. Light dressing is afterwards applied. On the accession of swelling, heat, and pain, the parts are to be well fomented with a hot decoction of chamomile flowers, and afterwards covered with a warm and soft poultice; (or lint dipt in warm water and covered with oiled silk;) and should these symptoms continue, the fomentation should be frequently repeated. Fomentations and poultice are also the best applications when a day or two has elapsed between the receipt of the injury and the patient's application for cure. The constitutional symptoms are to be moderated, and may in many instances be averted, by the exhibition of antimonials and purgatives, and by general blood-letting, when demanded or authorised by the symptoms and state of the constitution. Punctures or incisions are to be employed according to circumstances, in order to lessen the vascular congestion of the part, and prevent the formation of matter, or evacuate it, if already secreted. In many unpromising cases of lacerated scalp, when a great part of the cranium has been exposed, and partially deprived of its perisoteum, a rapid cure has taken place without the formation of much matter. The detached portion, though much torn and bruised, ought not at first to be removed, it being more prudent to leave nature to determine how much must be destroyed.

After the sloughs, if any, have separated, and granulation has commenced, the loss of substance is rapidly repaired in this region, more

especially when the patient is young and healthy. General or partial support by bandaging, is required in many cases, as by a handkerchief, split cloths, or a roller applied in various forms. *Liston's Surgery.*

SCAMMONY, or *Convolvulus Scammonia.* The convolvulus that furnishes the gum resin called scammony, is indigenous in the western parts of Asia. Its roots contain a milky juice, which, by cutting them transversely, flows out and produces the scammony in its pure state, but it is supposed that we seldom obtain it without admixture. It is a substance of a greyish brown colour, friable with a resinous fracture of a nauseous taste and disagreeable odour. It is principally composed of a resin with small quantities of gum and extract, combined with a considerable proportion of extraneous matter. The medical properties of scammony are those of an active purgative, which operates briskly and copiously, and seems to be peculiarly effectual in removing from the bowels all collections of sordis that may have impeded their regular functions. It sometimes causes griping, but when taken in proper doses, and at due intervals, it may be considered among the most valuable cathartics we possess.

'Scammony judiciously managed,' says Dr Duncan, 'stands not in need of any corrector; if triturated with sugar or with almonds, it becomes sufficiently safe and mild in its operation. It may likewise be conveniently dissolved by trituration in a strong decoction of liquorice, and the solution then poured off from the fæces. The common dose of scammony alone is from three to twelve grains. The colleges order a confection and powder.'

The Confection of Scammony.

Scammony in powder, one ounce and half.
Cloves bruised.
Ginger in powder, of each six drams.
Essential oil of carraway, half a dram.
Syrup of roses, as much as is sufficient.

Reduce the dry substances together to a very fine powder, add the syrup, and triturate these together; lastly, add the oil of carraway, and mix the whole.

This electuary or confection is a warm brisk purgative; a dram is a dose, containing about ten grains; but a dram and half, or even more, in some cases may be taken.

Compound Powder of Scammony.

Scammony in Powder,
Hard extract of jalap in powder, each one ounce,
Powdered ginger, half an ounce.

Mix them intimately, by rubbing them together in a mortar.

This is a powerful cathartic in dropsical affections, and very useful in expelling worms. The dose is from eight to sixteen grains.

Pure scammony is, however, we are sorry to add, seldom to be procured, and it has been found to contain as much as 75 per cent. of chalk and other impurities. It is to be hoped, however, that steps will be taken to procure this useful medicine of an uniform strength; this object could surely be attained by our Turkey merchants; for were it even one shilling per dram, it would yet be a cheaper medicine than it now is, considering the quantum of inert matter with which it is now intermixed.

SCARLET FEVER. This term is employed to denote a disease attended by fever, sore throat, and a red rash on the surface, which rash generally appears between the second and third day of the disease, first upon the face and neck, and spreads progressively over the whole body, terminating between the seventh and tenth days. This rash has very much the appearance of the shell of a boiled lobster, and sometimes there are minute vesicles. The inflammation of the throat sometimes runs on to ulceration and sloughing.

Scarlet fever has been divided by medical writers into three species, viz.:

Scarlatina Simplex, or simple mild scarlet fever.

Scarlatina anginosa, scarlet fever attended with acute inflammatory sore throat.

Scarlatina maligna, scarlet fever with malignant typhoid symptoms, and sloughing sore throat.

Scarlet fever is in general ushered in by shiverings, and a feeling of lassitude; this is followed by more or less fever, restlessness, want of appetite, thirst, headache, nausea, and oppression at the pit of the stomach. The tongue is at first slightly loaded and red, with raised papillæ, or it may be much loaded with a yellow fur, and intensely red at the tip and round the edges. Soreness of the throat is complained of, and this is often the first symptom; it is slightly swollen and much inflamed, or the fauces are of a dusky red hue without much swelling, and when the disease is somewhat advanced, ash-coloured spots may be discovered on the tonsils. There is frequently a degree of bronchitis, and troublesome cough, and difficult respiration; not unusually there is a degree of delirium which supervenes at night, and in some cases there is coma. On the third day, the face looks swollen and red, and the scarlet eruption continues to spread over the body. The scarlet colour disappears on pressure; the surface is perfectly smooth to the touch, nor is there the least appearance of pimples or pustules. On the fifth or sixth day, the scarlet eruption begins to abate, the skin becomes of a brownish hue, and peels off or desquamates, and the patient begins to recover appetite and strength. The danger, however, is not yet over, for after a few days' amendment, an unaccountable degree of languor and debility is felt; there is quickness of the pulse, loss of appetite, disturbed sleep, scanty urine, and dropsical swelling of the limbs and

trunk, and the patient dies with symptoms of water in the chest. This disease is distinguished from measles by the absence of the watery eye, and sneezing, and by the smoothness of the surface.

The favourable symptoms in this disease are: the fever being purely inflammatory; remission of the febrile symptoms and sore throat upon the appearance of the eruption; the eruption appearing late; and sometimes a favourable crisis is preceded by hemorrhage from the nose of a florid colour.

The unfavourable syptoms are: the eruption being preceded by great anxiety, nausea, or vomiting; the throat being of a dark dusky red colour without much swelling; and ash-coloured ulcerations appearing on the tonsils; great prostration of strength; low delirium or coma; the eruption appearing very early, as on the first or second day of the attack. In very bad cases, the lips and genital organs may become gangrenous.

In the malignant form of scarlet fever, the general symptoms are much the same as those we have already mentioned; but there are others which mark it even from the first. The pulse is small and indistinct; the face sometimes becomes quite pale and covered with clammy sweat; the eyes look sunk and dull; there is deafness, delirium, or coma; and the teeth and lips are incrusted with black crusts, the breath is fœtid, and the mouth and tonsils, particularly the latter, are seen covered with sloughing ulcers, which extend rapidly, the tongue is very tender, an acrid discharge flows from the nostrils. The rash is generally faint from the commencement, and gradually changes to a dark livid hue; hemorrhages frequently break forth from the mouth, nose, or ears; this form is exceedingly fatal.

Treatment. In the milder forms of scarlet fever, the treatment consists in giving an emetic in the early stage of the disease, followed by some gentle mercurial purge and saline draught, and the bowels are afterwards to be kept gently open, the patient may be placed in a warm bath for a short time, and antimonial diaphoretics exhibited; if the sore throat is severe, leeches may be applied externally, followed by gargles of the mineral acids, such as diluted muriatic acid and water with the addition of a few drops of the tincture of myrrh. In the acute inflammatory form of the fever, general blood-letting has been found of much service, and is to be followed up by other antiphlogistic measures; but in no case should external applications be applied for the purpose of repelling the rash, which might give rise to very dangerous symptoms. In the management of the dropsical symptoms, we must be guided by the general rules laid down when treating of that disease, premising, however, that as symptoms of pneumonia are sometimes present in children, in which these dropsical swellings take place, leeching will sometimes be of service in relieving the difficulty of breathing.

The treatment of malignant scarlet fever is the same as that recommended for typhoid fevers in general, (see *Typhus Fever*), using the mineral acid gargles, combined with tincture of myrrh and stimulants to the sore throat, or touching the sloughing ulcers with pure nitric acid on the end of a glass rod, in some cases the ulceration has been arrested by spontaneous hemorrhage, and therefore we may in some cases use local blood-letting by means of leeches or scarifications with advantage; the bowels should be carefully attended to, and the patient's strength supported by means of wine or other stimulants. See *Typhus.*

We need scarcely say anything about the best means of preventing contagion, as we have already detailed the best preventives under the article *Contagion;* and we therefore merely observe, that the room in which the patient is, should be well ventilated and fumigated, by means of vinegar thrown on a heated iron. There is risk of contagion as long as the desquamation of the cuticle is going on.

SCIATICA or HIP-GOUT. This term is used in medicine to denote a rheumatic affection, in which the pain stretches along the course of the great sciatic nerve, that is, from the hip along the back part of the thigh towards the ham of the leg. There is stiffness and pain, the latter often excruciating, and occurring in paroxysms, and increased by any change of temperature and moisture; there is generally swelling of the limb at the commencement of the disease, but after repeated attacks the limb seems to shrink, owing to the wasting of the muscles. In some cases, the articulation of the hip seems affected, and permanent immobility of the limb takes place.

Treatment. In the commencement of the disease, when there is a degree of general fever, the patient, if young and robust, should be bled from the arm, and a smart purgative should be administered, such as two pills containing five grains of calomel, and the same quantity compound extract of colocynth, and this should be followed in four hours by a saline draught. When the bowels have been freely opened, a tablespoonful of the following mixture should be given every hour, unless it causes vomiting, when the dose should be decreased, or altogether omitted for a few hours.

Take of Tartar emetic, one grain.
Battley's sedative solution, sixty drops.
Warm water, three ounces. Mix.

This medicine will generally give rise to a free perspiration, which will tend to alloy the general fever, and even diminish the local pain in many instances. When the local pain continues severe after the general fever has abated, the best local applications are cupping the

affected part, and sinapisms or blisters placed over the course of the pain, warm baths, frictions, shampooing, and in obstinate cases the actual cautery applied to the hip. In chronic cases, colchicum, opium, and mercurial purgatives must be given internally, to assist the local remedies.

SCIRRHUS. This term, which was originally used to denote induration or hardening of any structure, is now frequently used as synonymous with cancer, or the induration which marks the first stage of that disease. The tissue most liable to schirrus is the glandular; and these affections are seldom met with except in persons advanced in life. Although induration of structure may in some cases be simple, still in the great majority of cases, particularly in persons above forty, it is always to be viewed suspiciously, and whenever scirrhous tumours can be safely removed, it should be done early, before the system becomes affected.

SCLEROTIC COAT. The tough fibrous external coat of the eye, which forms four-fifths of the ball, and is termed in common language the white of the eye. See *Eye*.

SCOTT'S ACID BATH. A bath of diluted nitro-muriatic acid, employed by the late Dr Scott, as a remedy for jaundice. The acid should be three parts by measure, of muriatic, and two of nitric acid; and in preparing them for use, a pint of the compound acid is to be mixed with the same measure of water. The acid bath consists of three ounces of this diluted acid to each gallon of water employed.

SCROFULA. There is, perhaps, no disease more common than this, and yet from variety of forms in which it appears, it almost defies any definition; in fact we can only convey our ideas by describing the most prominent symptoms which generally present themselves. The following digest of the opinions of some of the most eminent physicians is taken from Dr Mackintosh's Practice of Physic.

Dr Cullen has given the following definition of scrofula:—'Enlargement of the conglobate glands, especially in the neck; the upper lip, and columna nasi, and lower part of the nostrils tumid; the face florid; the skin soft; the abdomen enlarged.'

Dr Mason Good, who applies the term 'struma' to this class of affections, gives the following definition:—'Indolent glandular tumours chiefly in the neck, suppurating slowly and imperfectly, and healing with difficulty; upper lip thickened; skin smooth; countenance usually florid.'

The belief is almost universal, that this class of diseases is hereditary, and that it is confined to an unhappy few who transmit it from father to son, from one generation to another, far more regularly than they transmit their money or virtuous reputation; but I must confess my scepticism upon this point, as I have known many instances where both parents were strongly marked with all the appearances described as scrofulous, nevertheless their children were very healthy; and I have as frequently seen exactly the opposite circumstances, where the parents had no vestige of the complaint, and yet the children were scarcely ever without some of the affections generally denominated scrofulous. Many authors, aware of these circumstances, observe, 'that it is true the parties are not born with the disease, but only with a greater aptitude to receive certain morbid impressions, which may bring the latent disposition into action.' This is a very plausible salvo, but it is too vague to be received as medical evidence. They also say that a remarkable circumstance attending scrofula, is that it does occasionally pass over one generation, and appear again in the next, so that 'the grandfather and grandson shall be both scrofulous, while the intermediate person who holds the most intimate relation of father and son, and connects the two others, shall be exempt from any attack of the disease.'

My opinion with respect to the generality of glandular affections denominated scrofulous is, that they are generally engrafted on the constitution by improper food and deficient clothing; by neglect, or bad medical treatment during the period of dentition; the progress of scarlet fever, measles, and other eruptive fevers, as well as during the ordinary eruptions and affections of the throat; and lastly, that they are produced by mismanaging swollen and inflamed glands during their early stages; hence, it is a disease with which some of the members of almost every family in this climate are at one time or another affected; and we see glandular affections in persons of every variety of colour of the hair, eyes, and appearance of the skin, and in every variety of constitution. I have therefore, long ago persuaded myself, that they depend upon gastro-intestinal irritation, which point of pathology has been clearly established with reference to the most scrofulous of all scrofulous diseases, viz., that which is termed 'tabes mesenterica.' This view is much strengthened by the following circumstances: scrofula is a frequent disease among the poor, and those who are fed upon large quantities of weak broth, coarse ill-baked bread, or hard indigestible puddings; from which causes the disease is often seen in charitable establishments for children; and I have also frequently seen it traced to English boarding-houses, where the children are crammed with hard pudding, before they are allowed even to smell meat, and are told 'that the young ladies and gentlemen who eat most pudding shall have most meat.' Poor children! I may mention another important fact, that scrofulous affections can be produced in a short space of time in many of the domestic animals by unwholesome feeding; thus I have seen them

purposely produced in poultry, rabbits, and pigs, by such means.

A pig is called 'measly' when it is affected with a very general disease of the glands throughout the body, which is well known to depend upon the manner in which it has been fed; and, in truth, it is from the occurrence of the disease in this animal that it has derived the name of scrofula.

There seems good ground for the following statement made by Mr Lloyd, in his valuable Treatise on Scrofula:—'Among the symptoms indicating a disposition to scrofula, it has been already observed, that a fair complexion, and light hair and eyes, are generally mentioned; but I believe there are no legitimate grounds for such distinction. Indeed, I am fully convinced, from a very extensive investigation of the subject, that persons of every variety of complexion are alike subject to this disease; and that it is only necessary to place them in circumstances favourable for its development, to have it fully established.'

The reasons will now appear evident why scrofula is a disease that no one can properly define; every physician having a definition of his own. The term is applied too often to diseased states of the system with the nature of which the physician is entirely unacquainted; and is too frequently used for the purpose of concealing professional ignorance, when we are puzzled and foiled in the treatment of disease.

I most heartily coincide with the sentiments expressed by Mr Lloyd in the following paragraph:—'In describing the symptoms indicating a scrofulous diathesis, all the authors with whom I am acquainted, have fallen into the error of describing the state of a patient, after the disease has given local evidence of its existence, instead of informing us of the temperament or habit of the body of the patient antecedent to this period, a circumstance which I cannot but consider of the highest importance in our pathological research. Thus they enumerate among the symptoms of a scrofulus diathesis, or which only denote a tendency to scrofula, a thickened chapped upper lip, the thickening extending to the ala of the nose,' 'tumescence and redness of the tarsi,' with weakness of the eyes in general, 'tumid belly,' and 'enlargement of the lymphatic glands, particularly those of the neck.' 'These, it is true, (continues he,) afford very decisive evidence of the existence of the disease, but should not be ranked among the symptoms indicating only a disposition to it. All the other symptoms illustrative of the same point, which have been adduced, are either dubious or uncertain, as fair and shining skin; light hair and eyes; females being more subject to it than males, or males than females; both of these contradictory positions having their respective advocates.'

I have many cases annually under my care illustrative of these statements, and proved not only by the previous history, but by the effects of proper remedies; for, as the functions of the stomach and bowels become more impaired, the inflamed and tumid appearance of the eyes, nose, or lip, become more and more evident, until, perhaps, ulceration takes place; but as the condition of these functions is improved, the above described state of parts disappears.

All parts of the body are liable to be affected by scrofulous degeneration; thus it is seen in the brain, lungs, heart, liver, spleen, kidneys, muscles, and bones, and also in serous and mucous membranes.

I cannot do better than extract the following description of scrofula, when left to itself, from Dr Cullen's 'First Lines on the Practice of Physic.' 'Frequently the first appearance of the disease is the tumid and chapped lip above mentioned, upon other occasions the first appearance is that of small spherical or oval tumours, movable under the skin. They are soft, but with some elasticity; they are without pain, and without any change in the colour of the skin. In this state they often continue for a time, even for a year or two, and sometimes longer. Most commonly they first appear upon the sides of the neck below the ears; but sometimes also under the chin. In either case, they are supposed to affect in these places the conglobate or lymphatic glands only; and not at all the salivary glands, till the disease is very greatly advanced. The disease frequently affects, and even at first appears in other parts of the body. In particular, it affects the joints of the elbows and ancles, or those of the fingers and toes. The appearances above the joints are not commonly, as elsewhere, small movable swellings; but a tumour almost uniformly surrounding the joint, and interrupting its motion.

'These tumours, as I have said, remain for some time little changed, and from the time they first appeared in the spring, they often continue in this way till the return of the same season in the next, or perhaps the second year after. About that time, however, or perhaps in the course of the season in which they first appear, the tumour becomes larger and more fixed; the skin upon it acquires a purple, seldom a clear redness, but growing redder by degrees, the tumour becomes softer, and allows the fluctuation of a liquid within to be perceived. All the process, however, takes place with very little pain attending it. At length some part of the skin becomes paler, and by one or more small apertures a liquid is poured out.

'The matter poured out has at first the appearance of pus, but it is usually of a thinner kind than that from phlegmonic abscesses; and the matter as it continues to be discharged, becomes daily less purulent, and appears more and

more a viscid serum, intermixed with small pieces of a white substance resembling the curd of milk. By degrees the tumour almost entirely subsides, while the ulcer opens more, and spreads broader; unequally, however, in different directions, and therefore is without any regular circumscription. The edges of the ulcer are commonly flat and smooth, both on their outside and their inner edge, which seldom puts on a callous appearance. The ulcers, however, do not generally spread much, or become deeper; but at the same time their edges do not advance or put on any appearance of forming a cicatrix.

'In this condition the ulcers often continue for a long time, while new tumours, with ulcers succeeding them in the manner above described, make their appearance in different parts of the body. Of the first ulcers, however, some heal up, while other tumours and ulcers appear in their vicinity, or in other parts of the body; and in this manner the disease proceeds some of the ulcers healing up, at least to a certain degree in the course of summer, and breaking out again in the succeeding spring; or it continues, by new tumours and ulcers succeeding them, in the spring season, making their appearance successively for several years.

'In this way the disease goes on for several years; but very commonly in four or five years it is spontaneously cured, the former ulcers being healed up, and no new tumours appearing; and thus at length the disease ceases entirely, leaving only some indelible eschars, pale and smooth, but in some parts shrivelled; or where it had occupied the joints, leaving the motion of these impaired, or entirely destroyed.

'Such is the most favourable course of this disease, and with us it is more frequently such than otherwise; but it is often a more violent, and sometimes a fatal malady. In these cases, more parts of the body are at the same time affected, the ulcers also seeming to be imbued with a peculiarly sharp acrimony, and therefore becoming more deep, eroding, spreading, as well as seldomer healing up. In such cases, the eyes are often particularly affected, the edges of the eye-lids are affected with tumour and superficial ulcerations; and these commonly excite obstinate inflammation in the adnata, which frequently produces an opacity in the cornea.

'When the scrofula especially affects the joints, it sometimes produces these considerable tumours, in the abcesses following which, the ligaments and cartilages are eroded, and the adjoining bones are affected with a caries of a peculiar kind. In those cases, also, of more violent scrofula, while every year produces a number of new tumours and ulcers, their acrimony seems at length to taint the whole fluids of the body, occasioning various disorders, and particularly a hectic fever, with all its symptoms, which at length proves fatal, with sometimes the symptoms of a phthisis pulmonalis.

'The bodies of persons who have died of this disease show many of the viscera in a very morbid state, and particularly most of the glands of the mesentery very much tumefied, and frequently in an ulcerated state; commonly also a great number of tubercles or cysts, containing matter of various kinds, appear in the lungs.

'Such (says Cullen,) is the history of the disease; and from thence it may appear that the nature of it is not easily to be ascertained.'

Treatment of Scrofula. In describing the treatment of scrofula, I shall confine myself to that which is necessary in glandular affections and superficial ulcerations, as the diseases of the eye and of the lungs have been already considered, and as those of the bones belong more to the province of surgery. Nevertheless, the constitutional treatment that I shall recommend, is equally applicable to all forms in which the disease occurs. We are told by almost every author, 'to correct the bad habit of body,' and improve the state of the constitution, but, as far as I am aware, we have never yet been told a proper method to bring about this desirable event, or indeed, in what the bad habit of body consists.

Mr Lloyd appears to me to have arrived nearer the truth than any other writer, but how much of his information has been drawn from Mr Abernethy, it is not for me to say. 'From repeated observations, however, (says Mr Lloyd,) I am convinced that there is always a disordered state of health antecedent to those changes in the structure of parts, which are called scrofulous diseases, whether they are the effects of an acquired, or of an hereditary tendency; and, therefore, that our treatment must be always founded on the same principles; so, of course, it must be modified according to any particular circumstances which may attend particular causes.' In other places of his work, he attributes this condition to more or less disorder of the digestive organs, which, he says, will always be found to have existed for some time previous to the appearance of the disease in any particular part. This will be distinctly observed in the following paragraph: 'From the nature of the constitutional disorder that attends and precedes this disease, we might be induced to believe that the disease entirely depended upon the disorder of the digestive organs, produced by various causes acting immediately on them, or mediately through the nervous system.' Nevertheless, Mr Lloyd has failed to show what the true nature of the disorder is, or its precise seat, or, I may add, a more successful mode of treatment than his predecessors.

Dr Cullen states, that 'for the cure of scrofula, we have not yet learned any practice that is certainly, or even generally successful. The

remedy which seems to be the most successful, and which our practitioners specially trust to and employ, is the use of mineral waters; and indeed, the washing out by means of these the lymphatic system, would seem to be a measure promising success.'

A great number of specifics have been recommended for the cure of scrofula, the chief of which are bark, mercury, steel, mineral waters, barytes, lime-water, and muriate of lime; but experience has shown that they are not worthy of much confidence, and some of them are represented to have been injurious. I was once very much amazed, on hearing the answer given by a physician in my presence to a lady, who was desirous of knowing how long her little girl was to be compelled to take the solution of the muriate of lime, saying, that it was a very nauseous medicine, and that it had done the child no good, although she had taken it regularly for six months. The physician replied, that it would probably require three or four years, before it would produce any beneficial effects, and that it must be regularly taken. Whether the physician spoke, believing what he said to be true, I cannot pretend to say, but he looked grave enough, and I laughed.

Judging from the condition of the tongue, from the appetite, the increased thirst, the tumefaction of the abdomen, the degree of flatulency, the occasional pain in the belly, the irregularity of the bowels, and the appearance of the feculent matter, I persuaded myself many years ago, that scrofulous affections were produced by disease in the digestive organs, and that that disease, whatever else it might be owing to, consisted principally in extensive irritation of the mucous membrane; but I had little notion, that there were also extensive ulcerations, till I was repeatedly convinced by dissection that this was the case; since which time, I have treated the disease in the following manner, and with much success.

If along with considerable gastro-intestinal irritation, there be much fever, even only at night, the strength being, as yet, unbroken, leeches ought to be applied to the abdomen, in such number as the symptoms, strength, and state of the constitution require; the bowels should be kept gently open, but drastic purgatives are on no account to be exhibited; counter-irritation should be produced on the abdomen, by means of stimulating embrocations, or, by what is still better, tartar-emetic ointment; and if an opiate be required to allay the irritation of the bowels, perhaps the best will be a few grains of Dover's powder. It is probably under such circumstances that lime-water has been found beneficial, as it is a remedy of considerable power in this particular state of the mucous membrane. The diet must be rigidly attended to, and varied according to circumstances. When the tongue is loaded, and red round the edges, or universally red, the patient should be restricted to gruel, arrow-root, whey, and the like, as the digestive powers will not be able to assimilate any other kind of food; soups, and animal jellies, which are so often had recourse to, prove very injurious, and aggravate the evils which it is our object to prevent. But when the marks of irritation in the stomach and bowels subside, when the tongue becomes clean, and the stomach more vigorous, a small quantity of chicken, or any other kind of meat, should be allowed, care being always taken that the patient swallows no more than the stomach can easily manage; if he does, the mischief will be soon announced by acidity, heart-burn, troublesome distension of the stomach, and a feverish night. For some days after such an occurrence, the articles mentioned in a former paragraph should be used.

Calomel, or blue-pill, is to be administered only when the tongue is furred, although there can be no objection either to an occasional grain or two of calomel, or of blue-pill, to act as a gentle laxative.

The great error of the system pursued by Mr Abernethy and his disciples arises from their giving the blue-pill indiscriminately, owing, perhaps, to their not being aware that the mucous membrane is the seat of the irritation, and that inflammation, and ulceration sometimes takes place.

The warm bath is to be used every second night, and on the alternate days the body may be sponged with warm water and vinegar, which last is the best remedy when the patient is either very weak, or when the health and strength are becoming restored, by and by, sponging with cold water, the shower-bath, or sea-bathing, may be substituted.

Air, and exercise, are most indispensible parts of the treatment; but the patient should not be exposed to a raw, cold, damp atmosphere, at least till recovery is far advanced, and not even then, unless the body be sufficiently protected by warm clothing. Flannel should be worn next the skin; and during the winter and spring months, a leather jacket and drawers should be used in addition to but outside of the flannel.

There can be no reasonable objection against the occasional employment of mineral acids and tonics, provided they be not persisted in too long, or exclusively trusted to as specifics, or used at times when leeching and counter-irritation are actually necessary.

I cannot avoid doing Mr Lloyd the justice of transferring the following judicious passage from his work to these pages :—'When there is what is called a weak stomach, with loss of appetite, I have often seen the different tonics, as cinchona, steel, and the mineral acids, of the greatest service, but I am sure, as I have said before,

that they possess no specific power over scrofula. Moreover, I feel certain, that a great deal of mischief is often produced by the exhibition of these medicines, in conjunction with a stimulating diet, and that diseases which might otherwise be speedily relieved, are by these means rendered fatal to the patients. Too often have I seen medical men, when consulted about children with swelling of the glands of the neck, or other scrofulous affections, at once declare them in a delicate state of health, prescribe a generous diet, as full meals of meat, with porter and wine, with the use of bark, steel, or some other strengthening medicines, as they are called, merely because the disease was scrofula. Too often have I seen this plan pursued in cases where, on more accurate examination, I have found the patient requiring a plan of treatment directly the reverse.' And in another place, alluding to the same treatment, he says:—'It is true, however, that when children are first put on this treatment, they appear, to the common observer, immediately to improve in health. A species of fever is produced, the cheeks become fuller and flushed, and the exhilarating powers of the stimuli heighten the spirits of the child, so that the delighted mother feels greater confidence in her doctor, and expects soon to see her child perfectly recovered. But too soon, however, these favourable appearances are generally proved to be fallacious, by the discovery of some fresh swelling, or by the child evidently becoming weaker and more irritable. It is equally true, too, that when children are put on a different plan of treatment, they often, for the first ten days, or a fortnight, become paler, and perhaps weaker; but after this period, if there be no important visceral disease, it will always be found that the irritation of the disease subsiding, they gradually recover strength and flesh, though perhaps taking only half the food which they were accustomed to before.'

These passages merit the greatest attention from those practitioners who still follow the line of treatment which Mr Lloyd condemns. It is now necessary that I should notice a remedy which has been found of great service in reducing enlarged glands, provided their structure be not destroyed by diseased action. This remedy is iodine, and its various preparations, the effects of which are very wonderful in bronchocele, although its administration in scrofulous affections of the glands has not been attended with the universal success which was at one time anticipated. Nevertheless, it is a preparation which is in many instances highly serviceable, but which requires judgment and discrimination. I have found that iodine is of no service if there be much gastro-intestinal irritation, or a loaded tongue, or if the gland be in a state of inflammation; hence it is that it has been found so beneficial in chronic indolent swellings, as in bronchocele, and that its operation has been observed in many cases to be more rapid when local bleeding with leeches is conjoined.

Local treatment of scrofulous affections of the glands. It is to be apprehended that serious injury has been inflicted on individuals by the absurd plan of trying to 'put back' glandular tumours, by cold applications of various kinds. When the tumours are small, and not painful, little need be done except covering the parts with flannel, or rubbing them with an ointment containing iodine; but should there be any inflammation, warm fomentations, or poultices, ought to be applied, and an opening made so soon as fluctuation is discovered.

Dr James Hamilton, jun., the professor of midwifery in this university, has great merit for being the first, or among the first, who insisted upon the advantage of making an early opening; and he used to take particular pains to show, that so far from leaving a mark, an early puncture was the best means for preventing such a disagreeable circumstance; and I have invariably found that he was correct. By making the incision we shall prevent the formation of those small apertures which so frequently run into extensive ulcerations; and we always find that the longer the part is inflamed, and the more distended it becomes, the subsequent ulcerations are more extensive, indolent, and difficult to heal. When the gland is deep-seated, there is a greater necessity for letting out the matter which is pent up. But should the glandular swelling be very much inflamed and tender from the first, or become so at any time before matter is formed, leeches are to be applied to moderate the violence of the inflammation, and prevent the abscess from becoming so large as it would undoubtingly do if left to run its course.

In the event of our not being called till ulceration has taken place, besides attending to the constitutional treatment already so fully described, we must have recourse to the application of various remedies. Some cases of indolent ulcer assume a healing tendency under the application of the black-wash, or a solution of the acetates of lead or zinc, but it should be applied warm, and not persisted in for more than two or three days. In other cases, whether the sores are either indolent or irritable, the lunar caustic will be found to have the best effects; and the reason why it has failed so often is, that proper constitutional remedies have not been employed at the same time. In some cases, I have seen immediate benefit derived from the application of an ointment of the acetate of copper, in the proportion of two, four, or six grains of the acetate to a dram of simple cerate. From experience, I can speak highly of the effects of pressure. In a case of deep and extensive

scrofulous ulceration of the mammæ, of above fourteen years' standing, the part assumed a healing tendency in a few days after the application of a graduated pressure, and was completely cicatrized in rather less than six weeks; and I could mention many other cases, showing the same happy result.

SCROTUM. The bag of skin forming the envelope of the testicles. The scrotum is liable to a peculiar species of prurigo or itching, for which the mercurial ointment is almost a specific remedy. It also the seat of the disease named chimney sweeper's cancer, which commences in folds of the skin, in the form of warty excrescences, which ulcerate and spread rapidly; the disease seems to be caused by the irritation produced by the soot constantly lodging in the folds of the scrotum; mercurial preparations are hurtful, and the early removal of the affected portion of the scrotum seems the only method of preventing the extension of the disease, but the patients seldom present themselves for cure until the irritation and diseased action has been propagated to the neighbouring glands, when of course all operative procedure is out of the question.

SCURF. This word is used to signify any scaly eruption on the surface, but properly means those scaly exfoliations caused by desquamation of the cuticle after slight inflammation of the skin, and which is frequently seen on the head and face. The best application are ointments composed of the oxides of bismuth or zinc, thinly spread on soft rag, and applied over the part, care being taken thatthe greasy application be washed off before applying a fresh dressing.

SCURVY (*scorbutus*); a disease of a putrid nature, prevalent in cold and damp climates, and which chiefly affects sailors and such as are shut up in besieged places; owing, as is supposed, to their being deprived of fresh provisions, and a due quantity of acescent food assisted by the prevalence of cold and moisture, and by such other causes as depress the nervous energy, as indolence, confinement, want of exercise, neglect of cleanliness, much labour and fatigue, sadness, despondency, &c. These debilitating causes, with the concurrence of a diet consisting principally of salted or putrescent food, will be sure to produce this disease. It seems, however, to depend more on a defect of nourishment than on a vitiated state; and the reason that salted provisions are so productive of the scurvy is, most probably, because they are drained of their nutritious juices, which are extracted and run off in brine. As the disease is apt to become general among the crew of a ship, when it has once made its appearance, it has been supposed by many to be of a contagious nature; but the conjecture seems by no means well founded, The scurvy comes on gradually, with heaviness, weariness, and unwilliness to move about, together with dejection of spirits, considerable loss of strength, and debility. As it advances in its progress, the countenance becomes sallow and bloated; respiration is hurried on the least motion; the teeth become loose; the gums are spongy; the breath is very offensive; livid spots appear on different parts of the body; old wounds, which have long been healed up, break out afresh: severe wandering pains are felt, particularly by night; the skin is dry; the urine small in quantity; and the pulse is small, frequent, and towards the last, intermitting; but the intellect, for the most part, is clear and distinct. By an aggravation of the symptoms, the disease, in its last stage, exhibits a most wretched appearance. Scurvy, as usually met with on shore, or where the person has not been exposed to the influence of the remote causes before enumerated, is unattended by any violent symptoms. Slight blotches, with scaly eruptions on different parts of the body, and sponginess of the gums, are the chief ones observed. In the cure, as well as the prevention of scurvy, more is to be done by regimen than by medicines, obviating, as far as possible, the several remote causes of the disease; but particularly providing the patient with a more wholesome diet and a large proportion of fresh vegetables; and it has been found that those articles are especially useful which contain a native acid, as oranges, lemons, &c. When these cannot be procured, various substitutes have been proposed, of which the best appear to be the inspissated juices of the same fruits, or the crystallized citric acid. Vinegar, sour crout, and farinaceous substances, made to undergo the acetous fermentation, have likewise been used with much advantage; also brisk fermenting liquors, as spruce-beer, cider, and the like. Mustard, horse-radish, garlic, and other substances of a stimulating character, promoting the secretions, are useful to a certain extent. The spongy state of the gums may be remedied by washing the mouth with a solution of alum, or some of the mineral acids much diluted and combined with a decoction of Peruvian bark. The stiffness of the limbs is to relieved by the application of cataplasms containing vinegar, or by fomentations of warm vinegar and water, or frictions with oil or lard; and it is stated that in hot climates, the earth bath has completely and speedily removed this symptom. Dissections of persons who have died of scurvy, have always discovered the blood to be in a very dissolved state. The chest generally contains more or less watery fluid, in many cases of a very acrid nature; so acrid, indeed, as to excoriate the hands by contact with it. The lungs are generally black and putrid. The abdomen contains fluid similar to that found in the chest. The bones and joints are frequently found diseased, but the brain is seldom found altered in structure or appearance.

SCURVY GRASS, or LEMON SCURVY GRASS, the *Cochlearia Officinalis*. This indigenous plant is cultivated in gardens, for its medicinal qualities. The juice of this plant, although now out of fashion, was considered one of the most effectual of the antiscorbutics, and the plant held, and still holds, a place in the materia medica. When, from less attention to cleanliness, certain diseases of the skin were more frequent than at present, our ancestors were accustomed to regard every chronic eruption, or outbreaking on the skin, as scurvy, or its progeny; and hence the great number of remedies admitted even into the pharmacopeias of the colleges as antiscorbutics. Observation and experience, no doubt, told them, that a liberal use of certain herbs, roots, &c., and their juices mitigated and frequently removed these; and as they made their appearance more generally in the spring and beginning of summer, a great variety of antiscorbutic juices, waters, confections, and ales, now discarded by modern practitioners, were used by all classes. There is, no doubt, however, that the faculty has gone to the opposite extreme, for a liberal use of some of these ales, &c., and even of a mixture of equal parts of the leaves of scurvy grass, garden and water cresses, and common, or wood sorrel, used as salads, are often of great benefit in those cases usually denominated scorbutic. There are some cutaneous affections in which the sorrel should be omitted. There is another plant, of a different class, the *Soldanella*, or *Brassica Marina*, sometimes called *Scotch scurvy grass*, which possesses very different virtues, from the common garden scurvy grass, above described. It is known, also, by the names of *Sea-bend weed* and *Sea-Colewort*, as it grows on the sea-shore. This plant formerly held a place in the materia medica. The root, leaves, and stalks, yield a milky juice, and are powerfully drastic purgatives; and it is sometimes used by the poorer inhabitants on the coasts where it grows, as a domestic purge. As there are, however, many safer and milder medicines to be procured, we would advise that if nothing more pleasant can be found, to drink a pint of clear sea water, which will prove an equally effectual purgative; and indeed we know few saline medicines of greater efficacy.

SCURVY SPOTS. This is a popular term for those slightly inflamed, scaly eruptions, which appear on different parts of the body; a large proportion of the surface being free from disease. These eruptions are often tedious and troublesome; and with difficulty removed by any external applications. The best treatment, in such cases, is to attend, in the first instance, to the constitution of the patient and the state of the digestive organs, more particularly as it is no unfrequent occurrence to find such eruptions arise from the patient eating certain articles of diet which disagree with his digestive organs. The bowels should be freely opened, by means of a pill, composed of four grains of blue-pill, and the same quantity of the compound colocynth pill, followed in the morning by a saline draught; afterwards, the diet should be regulated, and three or four grains of Plummer's pill given every second or third night, for eight or ten days; and occasionally a saline draught, if necessary, to open the bowels; and the warm vapour, or warm sulphureous baths, should be used at the same time. Whilst the spots are in the inflammatory stage, the best local remedies are warm fomentations, or warm weak solution of the sugar of lead. In the after stages, lotions of the sulphates of zinc or copper may be used; but in the scaly stage of the spots the best application is some stimulating ointment, such as the citrine or red-precipitate ointments, taking care always to wash off the former dressing, before applying fresh dressing to the parts.

SEA-AIR. The air on the sea-coast is generally reckoned purer and more invigorating than that of inland situations, and is therefore frequently recommended for those invalids who are suffering from dyspepsia, general debility, &c., and who are free from affections of the lungs; for where the respiratory organs are affected it is very questionable how far it is proper to recommend sea-air to that class of invalids, as from the sudden changes of temperature on the coast, they are liable to have fresh accession of cold and increased irritation of the lungs; and hence, for such patients, a sheltered inland situation should be preferred.

SEA-BATHING has been found very salutary in several complaints, as diseases of the glands of all kinds, and of the skin in scrofula and a scrofulous predisposition, exhausting sweats, and tendency to catarrhs, chronic nervous diseases, particularly hysteric attacks, epilepsy, St Vitus's dance; also sometimes in chronic rheumatism. But it must not be used in the case of plethora, inclination to congestions and discharges of blood, diseases of the heart, tendency to pulmonary consumption, obstruction and induration of internal organs. The great proportion of salt and of animal substance in the sea-water, the constant motion and swell of the waves, the sea air, and the very sight of the sea, together with the excitement caused, at least in the case of timid persons, from overcoming a degree of fear, contribute to the effect of sea-bathing. Machines are sometimes used for conveying patients into the water. In these, being protected from observation, the bather can enjoy the sea perfectly undressed, which is much preferable to going into the water with a dress on.

SEA-KAIL (*crambe maritima*); a crucifer-

ous plant, growing wild in Europe, upon sandy sea-shores. The whole plant is entirely smooth and glaucous; the stems are about two feet high and branching, bearing fleshy leaves, some pinnatifid, and others sinuate, undulate, and crisped; the flowers are disposed in a terminal panicle. From time immemorial, the common people have been in the practice of watching when the young shoots and leaf-stalks begin to push through the sand, and cutting them off below the surface of the ground for boiling as greens. About eight years ago, it was first introduced into the gardens as a culinary vegetable; and now it is very common, as such, in many parts of Europe. It is planted in a deep, sandy soil, and is blanched either by sand, ashes, litter, or by covering with flower pots, or any other opaque cover. It is forced either by taking up the roots, and planting them in a hot-bed, or in the border of a forcing house, or by surrounding them with litter in the open garden. Each plant should have a cover to keep off the dung from the young shoots, as well as to ensure their being blanched. No plant is so easily forced; and, unlike asparagus, it yields produce the first spring after raising from seed.

SEA-SICKNESS. The nausea, retchings and vomitings experienced at sea by those unaccustomed to a sea life. The principal cause of the sickness is, doubtless, the motion of the vessel, and similar effects are sometimes produced by riding in a carriage; but it is often aggravated by the smells and effluvia of the vessel. Noxious gases are evolved by the bilge-water; and chloride of lime or ammonia have been recommended for counteracting their effects and disinfecting the ship.

SEA-WATER is principally a solution of muriate of soda, with a small proportion of muriates of magnesia, lime, and sulphate of soda. Its effects are purgative, when given internally; but is now seldom prescribed, as it is more nauseous, and less certain in its effects than other saline aperients which we possess. See *Sea-Bathing*.

SECONDARY FEVER. The accession of febrile symptoms which occurs in small-pox about the eleventh day, when the matter in the pustules is becoming absorbed, and the eruption drying up. When this secondary fever runs high, it is reckoned an unfavourable symptom.

SECRETION. A product secreted or separated from the blood by a peculiar process. Many of the component parts of the animal system become, in the course of its operations, changed, and unfit for further use. For the preservation of the system it is not less necessary that these parts should be removed, than that the constant consumption should be supplied; and in this double process the whole organic system is continually changing its ingredients, although it retains the same external form. This supply of new matter is derived from the blood, and the process itself is called *secretion*. Most animals secrete both solids and fluids. The solids are deposited by the capillary vessels at the places of their destination, and supply the continual wear of the system. The liquids are not intended to preserve the form directly, but serve to assimilate the food by promoting digestion (as, for instance, the saliva, gastric juice, and bile.) In these secreted fluids are contained all the component parts of the blood, slightly changed, together with an alkali. Distinguished from these are the excretions, which are produced in a similar manner, and are designed to carry off from the system useless matter.

Secreted products are of two kinds, viz.—

1st. Excretions, or matter separated by animal bodies and thrown off, on account of their noxious qualities, as the urine, the fæces, perspiration, and the carbonic acid gas from the lungs.

2d. Secretions properly so called; these are matters separated from the blood for further objects, and for the performance of various subordinate actions in the living system, as the bile, saliva, &c.

SECUNDINES. The afterbirth or placenta, and the membranes of the fœtus, which are thrown off by the womb after the birth of the child. See *After-birth* and *Labour*.

SEDATIVES. Medicines which alleviate pain, and induce a degree of quiet. Sedatives act in the first instances as stimulants, the stimulating effects being followed by depression of the vital powers, and a degree of torpor or sleep. See *Narcotics* and *Opiates*.

SEDIMENT. The heavy parts of liquids which fall to the bottom when the liquid is left at rest, or which are deposited when the temperature of the liquid is reduced.

SEDIMENT LATERITIOUS. The thick brick-dust coloured sediment deposited from the urine, which is frequently seen in diseased states of the system, as in fever, biliary derangement, and after eating certain articles of diet. The sediment which occurs most generally in cases of stone or gravel, is uric acid.

SEDLITZ, OR SEIDLITZ WATER. A mineral water obtained from the village of Sedlitz, in Bohemia. The waters are saline and purgative, limpid, sparkling, and of a bitter and salt taste. They contain sulphates of magnesia (Epsom salt), soda (Glauber's salt), lime, and carbonates of lime and magnesia.

Artificial seidlitz powders are made as follows: The alkaline powder which is contained in the blue paper, consists of two drams of Rochelle salts, and one scruple of carbonate of soda, and is to be dissolved in half a tumbler of water; to this the acid powder contained in the white paper, and consisting of thirty grains of

tartaric acid, is added, and the draught taken whilst it effervesces. Seidlitz powders are useful as a gentle aperient, and for relieving nausea, and headache.

SELTZER, or SELTER'S WATER. A mineral water belonging to the class of acidulous waters, which is found in the village of Neiderselters, near Limburg, in Nassau. It is drunk unmixed at meals, or with wine and sugar. The water is exported in great quantities, in stone bottles containing about three pints. More than one million are filled annually. On the spot, 100 bottles, pitched, &c., are sold for eleven guild. Rhenish. It is composed, according to Bergmann, of carbonic acid, 60 cubic inches; muriate of soda, 109·5 grains; carbonate of magnesia, 29; ditto of lime, 17; ditto of soda, 24; in about five pints of water. See *Mineral Waters*.

SEMOLINA, or MAMNA CROUP. The farina obtained from a species of corn in Russia. When boiled with equal parts of milk and water to the consistence of porridge, and eaten with milk and a little sugar, it forms an excellent and agreeable article of diet for invalids and children, and is easy of digestion.

SENEGA, or *Polygala Senega*. This plant, the root of which is employed in medicine, derives its name from the *Seneca* or *Senegaw* Indians, who use it as a remedy for the bite of the rattlesnake, and it is known by the English name of *rattlesnake root, or milkwort*. It is a native of the United States, and abounds in Virginia. It possesses a considerable degree of heat and pungency, which is conceived to reside principally in the bark, and to depend upon a resinous matter contained in it. The root is inodorous, having at first a sweetish taste, which on chewing becomes acrid, hot, and pungent. Its virtues are extracted by alcohol and æther, although it is most frequently used in the forms of powder and decoction. Its medical virtues are those of an excitant, and it has been supposed to act more particularly on the mucous membrane of the lungs and trachea, or windpipe. It has been employed in humoral asthma, chronic rheumatism, dropsy, and croup. But although it is a medicine highly recommended by some practitioners, it has never risen into any very general estimation in Britain. The dose of the powder, given in Madeira wine as a stimulant diaphoretic, is from thirty to forty grains, and we have sometimes seen it do good in this dose twice or thice a-day in the sequel of rheumatic fever.

The decoction of Senega.

Senega root, bruised, one ounce.
Water, two pints.

Boil down to one pint on a slow clear fire, and strain while hot.

This, which is the only preparation of the root ordered by the colleges, has a brown olive colour, is inodorous, and like the root has a hot pungent taste. It is employed in dropsy, rheumatism, and affections of the lungs attended with debility, and inordinate secretion, having diuretic, purgative, and stimulant properties. It is taken in doses of from half a wine glass full up to a gill two or three times a-day.

SENNA or CASSIA SENNA. There is no medicine that is perhaps so well known, in domestic practice, throughout Britain and Ireland, as *senna leaves*. It would occupy too much of our space to quote the varied information of botanical travellers on the characters of those plants which furnish the leaves known to us by the name of senna; suffice it to state, that in commerce several varieties are met with, but the two most common in the British markets are the Alexandrian and the East India sennas. The first of these, the Alexandrian, receives its name from the place of shipment. *Alexandrian senna* has a grayish green colour, an odour like that of green tea, and a viscid taste. It presents a broken appearance, and on examination is found to consist of several kinds of leaves, and of broken stalks of petioles, fruits, flowers, &c. The leaves are of four kinds, namely, the acute-leaved cassia, the abovate cassia, the argel, and the tephrosia apollinea. The fruits are those of cassia, of argel, and tephrosia apollinea, the flowers are those of the two first genera.

The East India senna. Under this name two varieties of senna are met with in the market, viz., the *Tinnevelly senna*, cultivated at a place of that name, by a gentleman of the name of Mr G. Hughes, and it is hence sometimes called *Hughes' Tinnevelly senna*. It is a very fine unmixed senna, which is extensively employed, and fetches a high price. It consists of large, thin, and unbroken leaflets, from one to two inches or more long, and sometimes half an inch broad at their widest part. Guibaurt says, when exposed to a damp atmosphere, they are very apt to change colour, and to become yellow, or even blackish. Mr Pereira says, that he never met any with legumes mixed with it. The other variety of *East India senna* is the *Mecca senna*, which drug merchants denominate second or inferior India senna. It occurs in long narrow leaflets, of from one inch to an inch and a half long, narrower than those of Tinnevelly senna, and of a yellowish colour, some of the leaflets being brownish, or even blackish; but this change in colour is, probably, the result of the action of a moist atmosphere; legumes are occasionally mixed with it; they are from one and a half to three inches long, and from seven to eight lines broad, slightly curved, greenish in their circumference, and blackish in their centre, with a smooth surface.

Besides the kinds we have enumerated, there is occasionally met with Tripoli senna, Aleppo or Syrian senna, Senegal senna, Tunis senna,

and Smyrna senna; but these seldom appear in our shops, the Alexandrian and the two varieties of the East India being the only kinds sold.

Mr Pereira, to whom we are indebted for much valuable information, charitably believes that senna is never adulterated in this country, and we sincerely hope he may be right; we have, however, met with adulterated senna in more than one part of the united kingdom during the war, but have not of late seen any, which probably may be owing to the reduction of the duty from fifteenpence to sixpence per pound; but the same gentleman informs us that a serious adulteration is practised on the continent of Europe. The purgative principle of senna resides in an incrystallizable substance, of a reddish yellow colour, a peculiar odour, and a bitter nauseous taste. In small quantities it purges and excites colics, but as yet is seldom or scarcely ever used in the practice of the faculty. The strength of the purgative principle in the Alexandrian and East India senna is nearly alike; the blunt-leaved, or cassia abovate, is, however, less active than the acute leaved; and the leaflets, petioles, and legumes are equally purgative.

Senna, and its various preparations, according to the dose in which they are administered, have a cathartic and hydragogue effect. Indeed, it is probable that the active principle of senna becomes absorbed, since the infusion of senna given to a nurse affects the infant she suckles. As a medicine senna has long held, and still holds, a high place, more especially among domestic remedies. The bulk of the dose is an objection to its being taken in substance, and its peculiar odour or flavour is, with some, an insuperable objection to its use. Dr Paris proposes to remedy this by the addition of bohea tea to the infusion, but we think the old addition of coriander and carraway seeds is to be preferred. And if the infusion, tincture, &c., be prepared with the addition of suitable aromatics, and a due portion of sugar, objections either as to taste or smell may be overcome, even in children.

Perhaps the only cases in which a fair objection could be brought against the use of full purging doses of senna, are an inflammatory condition of the alimentary canal; a tendency to hemorrhoids, or uterine discharges, threatening abortion; prolapsus of the uterus or rectum, &c., and even in some of these cases it may be so corrected, as in the form of the electuary, as to be even admissable in such affections. It, however, appears peculiarly suited for those cases which require an active and certain purgative, with a moderate stimulus to the abdominal and pelvic viscera. Such as in constipation and inactivity of the alimentary canal, and requiring the frequent or continued use of purgatives in worms, in determinations of blood to the head, and many other cases, which readily suggest themselves to the reflecting, senna and its preparations answer well. The following are preparations of this useful medicine, ordered by our three national colleges. We prefer the formula of the Dublin college for the

Electuary or Confection of Senna.

Senna leaves in very fine powder, four ounces.
Pulp of French prunes, one pound.
———Tamarinds, two ounces.
Best mollasses, a pint and a half.
Essential oil of carraway, two drachms.

Boil the pulps in the molasses to the thickness of honey, then add the powder, and when the mixture cools, the oil; lastly, mix the whole intimately by stirring or rubbing the ingredients together.

Any active cook or housewife can easily prepare this useful medicine. If the flavour of the oil of carraway is disliked, the oils of pimento, or cassia, or cloves, or even a mixture of those oils, might be substituted. The size of a nutmeg or more may be taken daily in costive habits, even by pregnant females.

Infusion of Senna.

Senna leaves, one ounce and a half.
Bruised ginger root, one dram.
Boiling water, one pint.

Macerate an hour in a covered vessel, and strain.

We think the college would have greatly improved this simple infusion by adding a dram of bruised cinnamon to the ingredients, and ordering the strained infusion to be sweetened with two ounces of refined sugar.

Infusion of Senna with Tamarinds.

Preserved tamarinds, one ounce.
Senna leaves, one dram.
Coriander seed, bruised, one dram.
Brown or raw sugar, half an ounce.
Boiling water, half a pint.

Macerate for four hours with occasional agitation in a close earthen vessel, and strain the infusion. The infusion may be made with double or triple the quantity of senna.

This forms a mild and useful purgative, excellently suited for delicate stomachs and inflammatory diseases; the taste of the senna is well covered by the acidity of the tamarinds. Where tamarinds cannot be procured, or if they are of a bad quality, one dram, or as much cream of tartar as can be lifted on a silver sixpence added to the warm infusion, an hour before it is strained, will answer equally well, and be as pleasant to the taste.

Compound Powder of Senna.

Senna leaves in powder.
Cream of tartar, (supertartrate of potass) each one ounce.
Ginger in powder, two drams.
Scammony in powder, half an ounce.

Mix the three first ingredients intimately together in a stone mortar, and then gradually add the scammony, continuing the rubbing till the mixture is uniform.

This is an excellent purgative medicine It will often prove anthelmentic, and where obstinate costiveness obtains, may be taken in

doses of from a scruple to a dram in molasses or jelly, &c. The only objection is its bulk, and the frequent adulteration of the scammony.

Tincture of Senna.

Senna leaves, one ounce and a half.
Carraway seeds, bruised, three drams.
Cardamom seeds, bruised, one dram.
Raisins, stoned, two ounces.
Proof spirit, one pint.

Macerate for fourteen days with a gentle heat, and filter.

Compound Tincture of Senna.

Senna leaves, one ounce and a half.
Jalap root, bruised, half an ounce.
Coriander seeds, bruised, half an ounce.
Proof spirit, two pints.

Digest for seven days, and filter, and to the filtered tincture add four ounces of refined or candy sugar.

Both these tinctures are useful purgatives, especially to the aged, or those who have accustomed themselves to the use of spirituous liquors. They afford immediate relief in flatulent colic where common cordials have little effect; the dose is from one to two ounces if full purging is required, but half an ounce may afford relief where a carminative only is required.

Syrup of Senna.

Senna leaves, two ounces.
Sweet fennel seed, bruised, one ounce.
Manna, three ounces.
Refined sugar, one pound.
Boiling water, one pint.

Macerate the senna and fennel seeds for twelve hours and strain, adding the manna and sugar to the strained infusion so as to form a syrup.

Half an ounce of this syrup, and the same quantity of either of the two preceding tinctures, will form one of the easiest and most agreeable purgative draughts that can be swallowed. A little address is required in forming this syrup, as the directions of the colleges are incomplete for domestic practice; the strained infusion should be put in a bowl or bason fitted to the top of a saucepan half filled with water, sugar, and manna. The saucepan is to be placed on a slow fire so as to make the water boil gently, and this boiling is to be continued till the heat of the steam has dissolved the sugar and manna, and a syrup is formed. (See *Honey and Syrup.*) The syrup of senna is an excellent laxative for children, or those of delicate habits.

It may be proper to add, that from experience we have found equal parts of the best Alexandrian and East India senna answer better than either of them separately. The best Alexandrian sells at the highest price, but there is a very inferior kind of the East Indian to be met with in some grocers' shops, and even in some places dignified with the name of apothecaries' halls, that is utterly worthless, and should not be given either to child or adult.

It is a fact lost sight of by the faculty, that not only the purgative action of senna is increased, but that its griping qualities are much diminished by substituting the hot boiling decoction of guiacum for common boiling water in the infusion of senna. The guiacum shavings are very cheap, and, therefore, the addition may be made without either incurring much trouble or expense. Two ounces of the guiacum raspings, chips, or shavings, and one ounce of the chips of sassafras, are to be infused for six or eight hours in a pint of boiling water, and afterwards boiled together on a clear slow fire for half an hour, and the hot boiling decoction strained through a cloth on two ounces of mixed senna, and half an ounce of bruised cinnamon and ginger, and allowed to macerate or infuse for two hours, and the infusion is then to be strained, and two or three ounces of refined sugar dissolved in the infusion. If a syrup is required, the above strained infusion may be set aside, to allow the fæces to subside, and having poured off the clear liquor, as much sugar may be added as will form a syrup, and in either form of infusion or syrup it will be found more efficacious than either of the college receipts, and equally pleasant either in taste or flavour. One, however, of the most efficacious preparations of senna is the

Compound Aperient Ale.

Guiacum raspings, eight ounces.
Sassafras do. four ounces.
Mixed senna, three ounces.
New table beer, twelve imperial quarts.

Macerate the ingredients in the beer for three or four days, or until it is fit for bottling, and let it be bottled in half pint bottles one night and morning. The beer is to be warmed and sweetened when drank. Sometimes a single dose proves efficacious, and then only one bottle or half pint need be used in the course of the day. We have proved, by repeated experiment, that senna in this form is more efficacious than in any other, and is far preferable to what is called the *black draught*, which is an infusion of senna with gentian, so great a favourite with the late Mr Abernethy. The infusion, however, spoils in two days, but the medicated beer, if well prepared, will keep good for weeks, and when warmed and sweetened, is far from being so disagreeable a medicine as the black draught, and is even more efficacious as an aperient. Nothing better can be taken in the morning if a mercurial pill or bolus is taken at bedtime.

There is not, perhaps, to be met with a more suitable, mild, efficacious laxative than this medicated senna beer. We sometimes add an ounce of ginger where flatulence is oppressive, and even occasionally dried orange and lemon peel. In cases of obstinate costiveness, and in other cases where rheumatic and cutaneous affections require mild alteratives, for their alleviation or cure, a Plummer's or a blue pill at bedtime, and a bottle of this aperient beer in the morning will effect all that can be effected by those means. By mixed senna we mean

equal parts of the Alexandrian and Indian senna which is preferable to either alone.

SENSATION, or feeling, is a consciousness of a change taking place in any part, from the contact of a foreign body with the extremities of our nerves. The impression produced on any organ by the action of external bodies constitutes sensation. This sensation transmitted by the nerves to the brain is perceived, that is, felt by the organ; the sensation then becomes perception; and this first modification implies evidently the existence of a central organ to which impressions produced on the senses are conveyed. The cerebral fibres are acted on with greater or less force by sensations propagated by all the senses acted on at the same time; and we could only acquire very confused notions of all bodies that produce them, if one particular and stronger perception did not obliterate the others, and fix our attention in this collective state of mind; the brain is weakly affected by several sensations which leave no trace behind. It is on this principle, that, having read a book with great attention, we forget the different sensations produced by the paper and character. Besides the sensations that are carried from the organs of sense to the brain, there are others, internal, that seem to be transmitted to it by means of sympathetic reaction. It is well known what uneasiness the affection of certain organs, as the liver, stomach, &c., convey to the mind; these internal sensations are the origin of our moral faculties, in the same manner that impressions conveyed by the organs of sense are the sources of our intellectual faculties. We are not, however, on that account to place the seat of the mental passions in the viscera; it is only necessary to remember that the appetites, whence arise the passions, reside in their respective organs, and are phenomena purely physical, while passion consists at the same time in the intellectual exertion. *Hooper.*

SENSES. The internal organs of the five senses—seeing, hearing, feeling, smelling, and tasting—are the nerves, small, thread-like fibres, distributed all over the body, and all connected with the brain. Few subjects, in comparative anatomy and physiology, have given rise to more various and contradictory opinions than the external organs of sense in some classes. Much misunderstanding on this point has arisen from the hasty application of inferences drawn from the human subject to other animals. Thus it has been supposed that those which possess a tongue must have it for the purpose of tasting, and that the sense of smell must be wanting where we are unable to trace the existence of a nose. But, in many instances, the tongue cannot, from its substance and mechanism, be considered as an organ of taste, and must be merely subservient to the ingestion and deglutition of food; while, in many animals, particularly insects, an acute sense of smell seems to exist, although no part can be pointed out in the head which analogy would justify us in describing as the nose. The sense of touch appears to exist only in four classes of animals, —in most mammalia, in a few birds, in serpents and probably in insects; and although all animals may possess that feeling which makes them sensible to the impressions of warmth and cold, very few possess, like the human subject, organs exclusively appropriated to the sense of touch, and expressly constructed for the purpose of feeling, examining and exploring the qualities of external objects. The sense of taste, as we have above remarked, does not appear to be confined to the tongue, that member being wanting in many animals which do not seem destitute of the sense; and in many which possess it, the tongue is employed for other and different purposes. The sense of smelling prevails much more extensively in the animal kingdom than that of taste, since it not only assists several genera in selecting their food, which they have not afterwards the power of tasting, but is also of service in finding out proper objects for the satisfaction of their sexual appetites. We should naturally expect to find an organ of hearing in most classes of animals, when we consider the various services which this sense performs, as that of indicating the approach of danger, of conducting beasts of prey to their food, &c.; and even in those animals, in which no external organ of hearing is discoverable, the sense is evidently not wanting. The power of vision is confined to those animals which are provided with eyes for the reception of the images of external objects. Some species, even of the higher orders, are destitute of the organ of vision, which is also entirely wanting in the lower classes of the animal creation. It is by the senses that the mysterious communication between the spiritual soul and the external world of being is kept up. The manner in which this is done, is unknown to us; we can trace the operation of outward matter, upon the organized material system, a few steps; but we soon lose sight even of these vestiges, and are obliged to acknowledge our ignorance of the workings of our own frame. We cannot give even a sketch of the speculations of philosophers on this subject, on which the history of philosophy, in fact, chiefly turns.

SENSIBILITY. That action of the brain by which we receive impressions, either from within or from without. What is said of sensation generally, is applicable to sensibility; for this reason we only mention here that this faculty exerts itself in two ways very different. In the first, the phenomenon happens unknown to us; in the second, we are aware of it, we perceive the sensation. It is not enough that a body may act upon one of our senses. that a

nerve transmit to the brain the impression which is produced—it is not enough that this organ receive the impression; in order that there may be really a sensation, the brain must perceive the impression received. An impression thus received is called, in ideology, a perception or an idea.

These two modes of sensibility may be easily verified upon ourselves. For example, it is easy to see that a number of bodies have a continual action upon our senses, without our being aware of it; this depends in a great measure upon habit. Sensibility is infinitely variable; in certain persons it is very obtuse, in others it is very elevated; generally a good organization keeps between the extremes.

Sensibility is vivid in infancy and youth; it continues in a degree something less marked until past the age of manhood; in old age it suffers an evident diminution; and very old persons appear quite insensible to all the ordinary causes of sensations.

All parts possessed of a power of producing a change, so as to excite a sensation, are called sensible; those which are not possessed of this property, are called insensible. To the insensible parts by nature belong all our fluids, the blood, bile, saliva, &c., and many of the solids, as the hair, epidermis, nails, &c.; but the sensible parts are the skin, eyes, tongue, ear, nose, muscles, stomach, intestines, &c. *Hooper.*

SERUM. The thin colourless fluid like whey, which separates from the blood on its coagulation.

SETON. An issue or running sore, produced purposely by pinching up a thick fold of skin, and passing through its base a broad needle armed with a piece of tape or a small skein of silk thread, when the needle is withdrawn, and the seton composed of the silk or tape left in the wound to produce inflammation and discharge. There is a new and more cleanly kind of seton tape now generally used, made with India-rubber, so that it can readily be wiped and kept clean. See *Issue.*

SHARE-BONE, or *Os Pubis.* The bone which forms the anterior boundary of the pelvis or bason, (see *Skeleton;*) the share-bones of each side are connected in the mesial line by a firm fibro-cartilage, which is named the symphisis pubis; division of the symphisis has been recommended in cases of difficult labour for the purpose of enlarging the outlet of the pelvis, and so allow of the easier transmission of the fœtus, but any person who is acquainted with the parts, will at once see that the operation would afford almost no enlargement to the outlet, and consequently the operation is never performed now.

SHEA, OR BUTTER TREE. The tree known by this name, and the fruit yielding a vegetable oil, grows in great abundance in several districts of Africa; and so much respected is the shea, that it is never cut down when clearing land for cultivation. This tree much resembles the American oak, and the fruit from the kernel, of which being first dried in the sun, the butter is prepared by boiling the kernel in water; it has somewhat the appearance of a Spanish olive. The kernel is enveloped in a sweet pulp under a thin green rind, and the butter produced from it, besides the advantage of its keeping the whole year without salt, is whiter, firmer, and of a richer flavour than the best of butter made from cow's milk. The growth and preparation of this commodity seem to be among the first objects of African industry about Rabba and Bambarra, and it constitutes a main article of their inland commerce. The African butter may yet become a valuable commodity, and the shea tree is now supposed to have good claims to be placed in the natural order of the *sassotae,* and equally substantial ones, to one in the list of the materia alimentaria and the materia medica.

SHELL-FISH are generally considered very nutritious and easy of digestion, but are apt to disagree with some persons and cause cutaneous eruption, cramps of the stomach, &c. The principal shell-fish used in this country, are oysters, muscles, lobsters, crabs, and shrimps. Shell-fish caught on certain banks or beds, as they are termed, are poisonous. The effects produced, and the treatment required in such cases, will be found detailed under the head *Fish, Poisonous.*

SHERRY. A Spanish wine, growing in the neighbourhood of Xeres de la Frontera, in the province of Andalusia, near Cadiz. Many of the principal vineyards are in the hands of British and foreign settlers, to which probably is to be ascribed the improvement which of late has taken place in Sherry wines. The best soil (*albariza*) consists chiefly of carbonate of lime, with a small admixture of silex and clay, and occasionally magnesia. Red and white grapes are used indiscriminately. When ripe and gathered, they are spread on mats, and left to dry for two or three days; they are then freed from the stalks, and the rotten or unripe berries rejected. Being now introduced into vats, with a layer of burnt gypsum on the surface, they are trodden by peasants with wooden shoes The juice is collected in casks, in which the fermentation is allowed to take place, continuing generally from October till the beginning or middle of December. The wines are then racked from the lees, and those intended for exportation receive additions of brandy, seldom more than three or four gallons to the butt. The new wine is harsh and fiery, but mellows by being allowed to remain in the wood four or five years, though fifteen or twenty years are required to perfect its flavour. Sometimes bitter almonds are infused, to give the wine a nutty flavour. The dry sherry is the most esteemed. Its

flavour partakes of the taste of leather (called in Spanish *olor de bota.*) This is owing to the custom of bringing the wines down the country in large leather vessels, or, as the Spaniards call them, *botas*, whence we derive the term *butts.* This flavour goes off with keeping. The sherry wines are shipped, for the most part, at Cadiz, and are principally exported to England.

SHINGLES. A species of erysipelatous inflammation which usually attacks the trunk of the body; the term shingles is a corruption of the French word *ceingle*, a belt; a name given to this disease from the eruption which marks it, generally appearing round the waist. The eruption consists of a number of red spots with small vesicles, which are mostly placed round the waist like a sash. It rarely completely encircles the body, and this has given rise to the popular, though unfounded opinion, that when the belt of the eruption is complete, the disease will be fatal. This disease is preceded by languor, lassitude, loss of appetite, shiverings, headache, nausea, and quick pulse, shooting pains in the chest, and at the pit of the stomach.

After this, there is heat and pain in the skin, preceding the eruption, which then appears in the form of irregular patches, with an erythematic appearance, slighly elevated, and with small vesicles. In bad cases, and where there is organic disease, these spots assume a livid colour. In the course of from twenty-four to thirty-six hours, the vesicles become enlarged to the size of small pearls, and the patches are surrounded by an inflammatory flush; during three or four days fresh clusters continue to come out, completing the appearance of the belt or girdle. About the fourth or fifth day, the eruption begins to recede, the vesicles become white and opaque, and the red margins become of a livid or purple colour. Sometimes the vesicles burst, and several of the patches run together, forming irritable sores, discharging a thin serous fluid, which gradually concretes, forming a scab, and when the parts beneath heal up this falls off. The feverish symptoms do not always subside on the completion of the eruption, but on the contrary, in some cases there is an increase of fever, probably caused by the irritation of the vesicles. The disease is not contagious, and seems almost in every case to be connected with disease of some of the abdominal viscera. Although it may also arise from sudden exposure to cold after violent exercise, and has sometimes followed acute affections of the respiratory organs.

The treatment consists in administering gentle laxatives, attending to, and rectifying as far as possible, any derangement of the abdominal viscera, prescribing opiate diaphoretics to allay the irritative fever and promote cutaneous exhalation, and occasionally fomenting the eruption with warm water, rags, or applying simple dressing to the sores when ulceration occurs.

SHIVERINGS are very frequently the forerunners of serious diseases, such as fevers, and when they occur during the course of acute inflammatory disease, are symptomatic of suppuration being about to commence. They also frequently occur during and after delivery. Like all other symptomatic affections, shiverings are to be treated always with reference to the particular disease or state of the system in which they occur. As general palliatives, however, are sometimes required in the absence of medical advice, we may mention that the safest, are either a little weak brandy and water warm, or camphor mixture, or if inflammation be apprehended, a draught of warm gruel, or rice, or barley-water.

SHOWER-BATH. A species of cold-bath, in which the water falls suddenly through numerous apertures on the body. A proper apparatus for this purpose is to be obtained at the shops, but a temporary shower-bath can be readily enough constructed. The use of the shower-bath applies in every instance to the same purposes as the cold-bath, and is often attended with peculiar advantages; 1st. From the sudden contact of the water, which, in the common cold-bath, is only momentary, but which in the shower-bath may be prolonged, repeated, and modified at pleasure; and, 2dly. From the head and breast, which are exposed to some inconvenience and danger in the common cold-bath, being here effectually secured by receiving the first shock of the water.

SIALAGOGUES. Medicines which act upon the salivary glands, stimulating them, and causing an increased flow of saliva. Sialagogues are generally divided into topical and constitutional. The topical are those which act as stimulants by direct application to the extremities of the salivary ducts, such as the peppers, pyrethra, &c. The constitutional, or internal, are those which act after passing into the system, through the circulation, as the various preparations of mercury, nitric acid, &c.

SIBBENS. A very infectious disease, at one time common amongst the poor, ill-fed, badly clothed, and worse-housed people in certain parts of the Highlands of Scotland. It is communicable by very slight contact, as by kissing the lips of an infected person, drinking from the same cup, and the like. Cases of this disease are still occasionally seen. There are ulcers of the lips, mouth, throat, and nose; ulcerated patches and warty excrescences in the groins and armpits, and round the anus and private parts. A pustular eruption appears, and terminates in hardened crusts. The same disease is known in Ireland under the name of button scurvy; and a similar one has been described as occurring in the sea-coasts of Nor-

way and Sweden, which is there termed *radesyge*. In Canada also a similar disease was likewise prevalent. The yaws so destructive and common at one period in the West India islands, appear also to be much of the same nature. The treatment consists in keeping up a free perspiration at first by means of diaphoretic medicines, and the frequent use of the warm bath, or occasionally sulphuretted or acid baths, and giving alterative medicines, such as the sarsaparilla decoction with nitric acid, small doses of Plummer's pills, followed by gentle laxatives, and attention to diet and cleanliness.

SICK-HEADACHE. This is a painful affection of the head, arising from the sympathy between the digestive organs and the head, and depending on some derangements of the stomach or bowels; thus, it is present in bilious attacks, or in cases of surfeit, and from drinking. The headache is severe; there is great nausea, foul taste in the mouth, and foul eructations, great depression of spirits, and a considerable degree of general fever. If the complaint arise from excess in drinking, the nausea and headache may be allayed in the first instance by a draught of soda water, to which is added half a dram of carbonate of soda, and two drams of the tincture of gentian, previously dissolved in a little water; and then the bowels should be freely opened by means of a pill composed of four grains of calomel, and six of colocynth pill mass, followed by some saline purgative in the course of four or five hours. If the headache arises from a surfeit, then it may be prudent to administer an emetic in the first instance, and subsequently to exhibit the purgatives. The feet should be placed in warm water for some time, to induce perspiration, and cold cloths applied to the forehead.

In many cases, some days elapse before the functions of the stomach are properly restored. The state of the bowels require to be attended to, and the diet regulated, all heavy and indigestible or acid articles of food being carefully avoided.

SICKNESS. See *Nausea*.

SIGHT. See *Vision*.

SILVER. A metal which appears to have been known almost as early as gold, and without doubt, for the same reason, because it occurs very frequently in a state of purity in the earth, and requires but an ordinary heat for its fusion. Mention is made of silver in the book of Job, which is considered the oldest of the books contained in the Old Testament. The ores of silver are somewhat numerous; and we shall defer our account of them to the conclusion of the present article, commencing with the chemical history of this metal. Pure silver is of a fine white colour, with a shade of yellow, without either taste or smell, and, in brilliancy, is inferior to none of the metallic bodies, if we except polished steel. It is softer than copper, but harder than gold. When melted, its specific gravity is 10·47; when hammered, 10·510. It is next in malleability to gold, having been beaten out into leaves only $\frac{1}{100000}$th of an inch in thickness. Its ductility is no less remarkable. It may be drawn out into a wire much finer than a human hair; so fine, indeed, that a single grain of silver may be extended about 400 feet in length. Its tenacity is such, that a wire of silver 0·078 of an inch in diameter is capable of supporting a weight of 187·13 pounds avoirdupois without breaking. Silver melts when heated completely red-hot; and while in the melted state, its brilliancy is greatly augmented. If the heat be increased after the silver is melted, the liquid metal boils, and may be volatilized; but a very strong and long continued heat is necessary. Gasto Claveas kept an ounce of silver melted in a glass-house furnace for two months, and found, by weighing it, that it had sustained a loss of one-twelfth of its weight. When heated upon charcoal under the flame of the compound blow-pipe, however, the silver is volatilized with rapidity, passing off in a visible smoke. When cooled slowly, its surface exhibits the appearance of crystals; and if the liquid part of the metal be poured out as soon as the surface congeals, pretty large crystals of silver may be obtained. Silver is not oxidized by exposure to the air; it gradually, indeed, loses its lustre, and becomes tarnished; but this is owing to a different cause. Neither is it altered by being kept under water. But, if it be kept for a long time, melted in an open vessel, it gradually attracts oxygen from the atmosphere, and is converted into an oxide. When silver is dissolved in nitric acid, and an alkali dropped into the solution, a brown-coloured precipitate falls in flocks, which, when washed and dried, constitutes the *oxide of silver*. Its colour becomes a dark brown when dried. Its specific gravity is 7·14. When exposed to the direct rays of the sun, it gives out oxygen gas, and is converted into a black powder, the nature of which has not been examined. The oxide of silver is a compound of 93·1 silver and 6·8 oxygen. When oxide of silver is dissolved in ammonia, and the solution left exposed to the air, it is soon covered with a brilliant pellicle, which is a *suboxide of silver*.

A *superoxide of silver* appears to be formed, when a platina wire from the positive extremity of a galvanic battery is plunged into a weak solution of nitrate of silver, the compound in question accumulating in iron-black octahedrons upon the wire. Silver does not burn in chlorine gas, even when heated; but it gradually absorbs the gas, and is converted into the well-known compound formerly called *horn silver*, and afterwards *muriate of silver*, though now with more propriety denominated *chloride of*

silver. This chloride, however, is more easily obtained by dissolving silver in nitric acid, and mixing the solution with a solution of common salt. A copious curdy precipitate falls. When this precipitate is washed and dried, it constitutes pure chloride of silver. Its specific gravity is 5·129. It is one of the most insoluble substances known, requiring no less than 3072 parts of water for its solution. When exposed to the air, it changes from white to a purple or blackish colour. It melts at 500° Fahr., and assumes, on cooling, the form of a gray-coloured, semitransparent mass, having some resemblance to horn, and for that reason called *luna cornea*. A strong heat sublimes it. When heated strongly in an earthen crucible, it passes through altogether, and is lost in the fire; but when mixed with about four times its weight of fixed alkali formed into a ball, with a little water, and melted rapidly in a crucible well lined with alkali, the silver is reduced, and obtained in a state of purity.

Chloride of silver is composed of silver 13·75 and chlorine 4·50.

A *bromide* and an *iodide of silver* may be formed simply by adding, in the one case, a solution of a hydrobromate to one of nitrate of silver, and in the other, a solution of hydrodate. If one ounce of silver, one ounce of phosphoric glass, and two drachms of charcoal, be mixed together, and heated in a crucible, *phosphuret of silver* is formed. It is of a white colour, and crystalline in its texture. It is composed of four parts of silver and one of phosphorus. Heat decomposes it by separating the phosphorus. When thin plates of silver and sulphur are laid alternately above each other in a crucible, they melt readily in a low red heat, and form *sulphuret of silver*. Its colour is black, and it crystallizes in small needles. It is capable of being cut with a knife, and is more easily fused than silver. It is well known that when silver is long exposed to the air, especially in frequented places, as churches, theatres, &c., it acquires a covering of a violet colour, which deprives it of its lustre and malleability; this coating is sulphuret of silver. Selenium appears to enter into combination with silver in two different proportions, forming *seleniets*. Arsenic forms an alloy with silver in the proportion of sixteen of the former to one hundred of the latter; it is steel-gray, brittle, and fine granular. Silver may be alloyed with antimony by fusion. Silver and iron unite readily: the alloy has the colour of silver, but it is harder, very ductile, and attracted by the magnet. When 500 parts of good Indian steel are fused along with one part of silver, the compound is greatly improved for the purposes of cutting instruments. Melted lead dissolves a great quantity of silver at a slightly red heat; the alloy is brittle and lead-coloured. Silver is easily alloyed with copper by fusion: the compound is harder, and more sonorous than silver, and retains its white colour, even when the proportion of copper exceeds one half: the hardness is at its maximum when the copper amounts to one-fifth of the silver. The alloy of silver and tin is very brittle and hard. That of silver and mercury is formed by throwing pieces of red hot silver into mercury heated till it begins to smoke: it forms dendritrical crystals, which contain eight parts of mercury, and one of silver. The most important combination among those of the acids and silver (the *nitrate of silver*) has been alluded to above, in the description of the oxide of silver. Nitric acid is the proper solvent of this metal, from which solution the other salts of silver are obtained: it dissolves more than half its weight of the metal, the solution being attended with effervescence: if the silver and the acid are pure, the solution is limpid and colourless, exceedingly heavy and caustic: it stains the skin, and all animal substances, of an indelible black colour; hence it is often used to dye hair, &c.; when evaporated till a pellicle begins to form on its surface, it deposits, on cooling, transparent crystals of nitrate of silver, in the form of six-sided, four-sided, or three-sided, thin plates; but, by slow evaporation, the salt may be obtained in short, right rhombic prisms of 129° 31′; its taste is intensely bitter and metallic, and it is usually employed as a corrosive substance, under the name of *lunar caustic*; it is soluble in its own weight of cold, and in half its weight of hot water. From the solution, the silver is thrown down in a metallic state by a great number of bodies; for example, hydrogen, sulphurous acid, sulphate of iron, protochloride of tin, carbon, phosphorus, volatile oils, and many of the metals. The specific gravity of lunar caustic is 3·52. When heated, it readily melts, swells up, and then remains liquid; in this state it is cast into small cylindrical moulds by apothecaries, to be employed by surgeons for the purpose of opening ulcers and destroying fungous excrescences: as an escharotic, its action is powerful, and it is greatly preferred to caustic potash also, in consequence of its not being liable to deliquesce and spread. Both the crystals and the fused salt are anhydrous, consisting of 118 parts oxide of silver, and 54 nitric acid: it detonates, when heated with combustible bodies, and with phosphorous it detonates on percussion.

Sulphate of silver is obtained with ease by mingling together solutions of nitrate of silver and sulphate of soda: it falls in the state of a white powder, which may be dissolved in water, and crystallized: the crystals are white and brilliant, and have the form of very fine prisms; it has the peculiarly disagreeable taste of the nitrate; is anhydrous, and composed of sulphuric acid 5, and oxide of silver 14.75. *Sulphite*

of silver is obtained by mixing the solutions of sulphite of ammonia and nitrate of silver. It assumes the form of small, shining white grains: when exposed to the light, it assumes a bright colour.

Phosphate of silver is insoluble in water, and is hence precipitated when a solution of phosphate of soda is added to a solution of nitrate of silver.

The *salts of silver* are decomposed by the alkalies and the earths. Prussiate of potash, when dropped into a solution of a salt of silver, occasions a white precipitate; hydro-sulphuret of potash produces a black precipitate; and an infusion of nut-galls gives a yellowish brown precipitate. A fulminating preparation of silver, similar to that of gold, but more energetic, is prepared by dissolving silver in nitrous acid, diluted with three parts of water: to the solution lime-water is added as long as any precipitation is occasioned; the precipitate is washed and dried; it is then allowed to remain for several hours in liquid ammonia, when it becomes a black powder; the liquor is decanted, and it is allowed to dry in the air; when completely dry, such is its tendency to explosion, that it cannot be touched, the slightest agitation causing it to detonate; and so violent is the detonation, that the experiment cannot be made with safety on more than a grain. The theory of its detonation is considered as similar to that of fulminating gold; it probably consists of oxide of silver and ammonia, the elements being united by affinities so nicely balanced, that the slightest external force subverts them, and causes new combinations; the oxygen of the oxide unites with the hydrogen of the ammonia, and forms watery vapour; the nitrogen must assume the elastic form, and the augmentation of elasticity in these products, by the caloric suddenly extricated, may be the cause of the detonation. A fulminating silver totally different from that above described, is frequently sold as an object of amusement: it is enclosed between the folds of a card cut in two lengthways, the powder being placed at one end, and the other being notched, that it may be distinguished; if it be taken by the notched end, and the other be held over the flame of a candle, it soon detonates with a sharp sound and violent flame; the card is torn and changed brown, and the part in contact with the composition is covered with a slight metallic coating of a grayish-white colour. This compound is formed in the following manner: into a pint tumbler, or other glass vessel, is introduced 100 grains of dry nitrate of silver, over which is poured one ounce of alcohol, and the same quantity of smoking nitric acid. The mixture of the alcohol and nitric acid occasions much heat and effervescence in the liquid: if this is so violent as to overflow the vessel, cold alcohol is added in small portions to abate the ebullition: in a few minutes the liquor becomes turbid, and a very heavy, white, crystalline powder falls down, which is separated by the filter, and thoroughly washed with tepid water: before being fully dry, it should be separated into parcels of ten or twenty grains, which portions, when thoroughly dried at a distance from the fire, present the following properties: The substance is white and crystalline; the light changes its colour to a dark brown; when heated, it explodes with great violence. It explodes also by percussion and friction, and the contact of sulphuric acid. When put into dry chlorine gas, it explodes with a loud report. So powerful is this powder in its explosion, that no person but chemists should venture upon its manufacture, or presume to experiment with it. The most painful accidents have repeatedly occurred with it, in the hands of the inexperienced and the careless. It is composed of oxide of silver 14·75, and of a peculiar acid, called the *fulminic*, 5·25.

Silver Ores.—There are five important ores of silver, viz.—1. *Native silver;* 2. *vitreous silver* (or silver glance); 3. *black silver;* 4. *red silver;* 5. *horn silver.*

Native silver is occasionally found crystallized in the following shapes, viz.—the cube, octahedron, tetrahedron, rhombic dodecahedron, trapezohedron, and six-sided tables. The cube is the primitive form; but it more often occurs in dentiform, filiform, and capillary shapes; also reticulated, arborescent, and in plates; likewise in plates, formed in fissures, and in superficial coatings; cleavage none; fracture hackly; lustre metallic; colour silver-white, more or less subject to tarnish; streak shining; ductile; hardness between gypsum and calcareous spar; specific gravity, 10·47. Native silver has been distinguished into *common* and *auriferous* native silver: the former consists of silver alloyed with a small proportion of antimony, arsenic, iron, &c.; the latter frequently contains fifty per cent. of gold. Native silver occurs principally in veins, traversing gneiss, clay-slate, and other primitive and transition rocks. There are but few countries in which it is found in any considerable quantity. Among these are the mining districts of Saxony and Bohemia, also Norway and Siberia, but particularly Mexico and Peru.

Vitreous silver presents itself crystallized in cubes, octahedrons, and rhombic dodecahedrons. Its primitive form is the cube. It also occurs in reticulated, arborescent, dentiform, and capillary shapes; also massive and impalpable; fracture imperfect, and small conchoidal, uneven; lustre metallic, subject to tarnish; colour blackish lead-gray; streak shining; malleable; hardness about that of gypsum; specific gravity, 7·19. It consists of silver 85·0, sulphur 15·0.

It is easily fusible before the blow-pipe, and intumesces; but it gives a globule of silver by a continuation of the blast. It has been hitherto found almost exclusively in veins, along with ores of lead, antimony, and zinc. It occurs in Saxony, Bohemia, Hungary, Mexico, and Peru. It is an important species for the extraction of silver.

Black silver has for its primitive form a right rhombic prism of 100° 0′. The crystals, however, are not often observed; but it is more frequently in granular masses; fracture imperfect conchoidal, uneven; lustre metallic; colour iron-black; streak unchanged; sectile; hardness about that of gypsum; specific gravity 6·2. It consists of

Silver,	65·50
Antimony,	10·00
Iron,	5·00
Sulphur,	12·00
Copper and arsenic,	·50
	93·00

Before the blow-pipe, upon charcoal, it yields a dark-coloured, metallic globule, which may be reduced with saltpetre. It is found in silver veins along with other ores of silver. It occurs chiefly in Saxony, Bohemia, and Hungary, in Mexico and Peru. It is a valuable ore for the extraction of silver.

Red silver. The primitive form of this species is an obtuse rhomboid of 109° 28′. Its secondary forms are six-sided prisms, variously truncated and acuminated, and an equiangular double six-sided pyramid; cleavage parallel with the sides of the primitive form, pretty distinct; fracture conchoidal; lustre adamantine; colour iron-black to cochineal red; semi-transparent to opaque; sectile; hardness about that of gypsum; specific gravity 5·84. The crystals are very liable to occur twin-shaped. Red silver is often found massive, granular, and even impalpable. It consists of

Silver,	58·949
Antimony,	22·846
Sulphur,	16·609

It decrepitates before the blow-pipe upon charcoal, melts, and emits fumes of sulphur and antimony, after which it yields a globule of silver. Red silver is confined to a small number of localities, and occurs in veins along with other ores of silver, galena, and blende. It is found in the metallic veins near Freiberg, also at Marienberg, Annaberg, Schneeberg, and Johanngeorgenstadt in Saxony; likewise in Bohemia, Hungary, Dauphiny, and Norway; but is much more abundant in Mexico and Peru. It is a valuable ore for silver.

Horn silver has the cube for its primitive form, in which shape it frequently occurs, as also in acicular fibres; cleavage none; fracture more or less perfect conchoidal; lustre resinous, passing into adamantine; colour pearl-gray, passing into lavender-blue, and some shade of green; the colour becomes brown on being exposed to light; streak shining; translucent, sectile; hardness about that of talc; specific gravity 5·5. It occurs also in crusts and granular masses. It consists of silver 76·0, oxygen 7·6, and muriatic acid 16·4. It is fusible in the flame of a candle, and emits fumes of muriatic acid. Horn silver is most frequently found in the upper parts of veins in clay-slate, but occurs also in beds, generally along with other ores of silver, or with iron-ochre. It is not abundant in European countries, but occurs in large masses in Mexico and Peru. It is used for extracting silver.

Such are the ores of silver which are properly so called, and from which silver is chiefly extracted. Besides these, however, argentiferous sulphurets of lead and copper are sometimes smelted for the small proportion of this precious metal which they contain.

We have now to allude to the methods employed in obtaining the silver from its various ores. These are two in number, smelting and amalgamation. The former is founded on the great affinity of silver for lead, which, when fused with silver, acts as a solvent, and extracts it from its union with baser metals. The silver is afterwards separated from the lead by the well-known process of cupellation, which consists in exposing the alloy to a stream of atmospheric air, by which the lead is converted into an oxide or litharge, while the silver remains untouched. The latter method depends upon the property of mercury to dissolve silver without the aid of heat. The first is called the dry, the last, the wet way of treating silver ores. One or the other process is employed, according to the nature of the ores. The ores which are treated in the wet way are usually those which consist principally of argentiferous sulphuret of lead. The first thing to be done, by this method, is to pulverize and roast the ore in a furnace, to expel the sulphur. When the well or crucible is full of metal, it is tapped and run off. It is now ready for the process of refining, or cupellation. For this purpose, a reverberatory furnace is employed, the lower part of which is covered with wood, ashes, and clay, so as to form a cupel. On one side of the furnace there is a hole for the exit of the litharge; and on the opposite side is another for the admission of air to the surface of the metal, which is introduced through an aperture above, to which a cover is adapted. After the lead is melted and brought to a red heat, the blast of air is admitted, and the scoria, as it collects, is removed. When the litharge is formed, the heat is increased, and the quantity becomes greater, and is withdrawn through the opening in the furnace. At the same time, some lead is volatilized. Towards the end of the process, the litharge which comes off contains a small quantity of silver, and is

Fig. 1

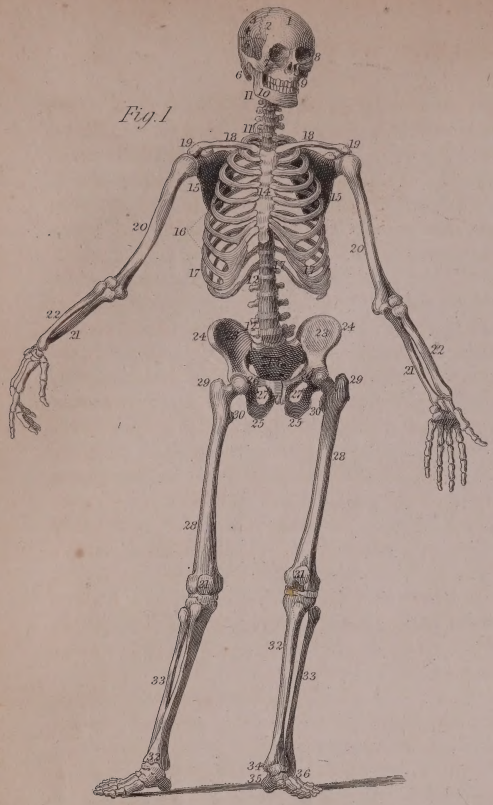

Fig. 2

Fig. 1

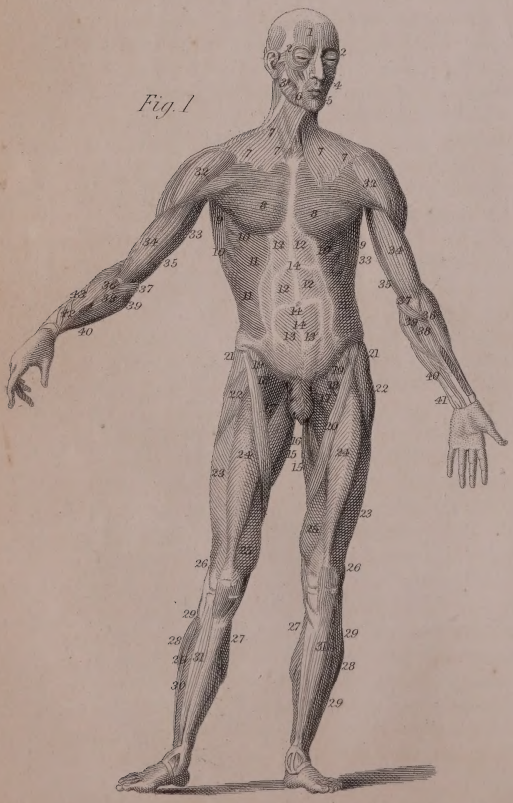

Fig. 2

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therefore kept separate from the rest. After the whole of the litharge is removed, and the surface of the metal in the furnace becomes bright, a quantity of water is poured on it, to keep it from spirting, which it is apt to do when congealing. The metal thus obtained is subjected to a similar operation for about five hours, in a smaller furnace, and at a higher temperature, by which it is completely freed from the lead. With respect to the other method of reduction or separation—amalgamation—the following is an outline of the more important steps, of which it consists. The ores best adapted to this process, are native silver and vitreous silver. The first operation that requires description is the selection of the ores to form a proper mixture, with reference to the quantity of silver and sulphur they contain. It has been observed that the amalgamation process succeeds best when the silver produce is about seventy-five ounces to the ton of ore; at the same time, regard being had to the quantity of sulphur present, which is ascertained from the quantity of sulphuret in the ore, previously learned by an assay in the crucible. The sulphur is got rid of, by adding to the mixture of raw ore ten per cent. of common salt, by which, during the furnace operation, the sulphur becomes acidified, and the acid thus formed, uniting with the base of the salt, forms sulphate of soda; whilst the muriatic acid thus set free, combines with the silver in the ore, that was not in the metallic state, and forms muriate of silver. In this state, the ore is subjected to various mechanical operations, with riddles, mills, and sieves, until it is reduced to an impalpable powder. It is then submitted to the action of mercury. This operation is performed in barrels, which are arranged so as to revolve on their axis. The mixture or charge in each barrel consists of sifted calcined ore, mercury, metallic iron, and water, in certain proportions. The ore is composed of sulphate of soda, muriate of silver, and other metals and earthy matters. By the process of amalgamation, the barrels being made to revolve during a period of sixteen or eighteen hours, the muriate of silver becomes decomposed by the action of the iron on its acid; and the silver thus reduced to the metallic state, combines with the mercury, forming what is termed *amalgam*, whilst the sulphate of soda, the muriate of iron, and other salts, become dissolved in the water. The silver combined with mercury is then filtered, by which the surplus metal is separated, and a compound remains in the sack, consisting of six parts of mercury and one of silver. This amalgam is subjected to the action of heat in a distilling furnace, by which the mercury is sublimated, and the silver remains. Silver is also sometimes separated from copper by the process of *eliquation*. The eliquation is effected by means of lead, which, possessing a greater affinity for silver than for copper, combines with the former, when brought into fusion with the alloy, and forms a new metallic compound. The argentiferous lead, thus obtained, is subjected to the usual processes of cupellation, and the coarse copper, from which the silver has been separated, is refined.

SINAPISM. Sinapisms or mustard cataplasms are used as counter-irritants or stimulants to the surface when we wish to produce a rapid effect, as in cases of apoplexy, concussion, spasmodic affections, and the like, but as their effects are less permanent than fly-blisters, these latter are generally employed in cases of inflammation, after bleeding; and where we wish to keep up the counter-irritation for some time. Sinapisms are prepared according to the object in each particular case. In some cases the mustard is mixed with an equal proportion of flour, and a sufficiency of water to form a paste; in others, with one half the quantity of flour; and in cases where its full and immediate action is required, the pure mustard is used, made up with whisky or spirits of turpentine.

SINUS. A long narrow ulcerated track in the soft parts, communicating either with the cavity of an abscess, or diseased bone, &c.

SKIN. The porous tissue which forms the external covering of the body, and which, besides its use as a covering, performs the functions of perspiration and absorption. It consists of two separate parts—the *epidermis* or scarf-skin, and the *cutis* or proper skin; between lies the *rete mucosum*. The epidermis may be separated from the cutis by soaking in water. It is raised by the application of blisters, and in some diseases of the skin, peels off of itself. The complexion of negroes is owing to the black colour of the rete mucosum. The fat keeps the epidermis soft, and is diminished in quantity in those diseases in which the skin becomes rough. The epidermis protects the terminations of the nerves, whose sensibilities would otherwise soon become blunted. The surface of the skin is marked with very regular furrows, running parallel with each other, in which are the pores, which exhale an attenuated vapour. The proper skin forms a compact and thick membrane, which envelopes the muscles and fat. The skins of animals when boiled in water, yield a quantity of gelatinous matter, which is used for making glue.

SKELETON. When the bones of the body are preserved in the natural situation, and deprived of the soft parts, the assemblage is termed a skeleton. Where the bones are left connected to each other by the ligaments, they form what is called a natural skeleton; but when joined together by means of wires or screws, the assemblage is termed an artificial skeleton. The different bones composing the human skeleton, and the position which they bear to

each other, will be best learned by the general reader by perusing the accompanying table, and referring to our plate of the skeleton.

Fig. 1. 1. Frontal bone. 2. Coronal suture. 3. Parietal bone. 4. Squamous suture. 5. Temporal bone. 6. Mastoid process. 7. Malar or cheek bone. 8 Nasal bone. 9. Upper jaw bone. 10. Lower jaw bone. 11. Vertebræ of the neck. 12. Vertebræ of the loins. 13. Os Sacrum. 14. Breast bone. 15. Scapula or shoulder-blade. 16. True ribs. 17. False ribs. 18. Collar bones. 19. Coracoid process. 20. Humerus or arm bone. 21. Ulna. 22. Radius (these two bones form the fore-arm). 23. Os Ilium. 24. Crest of the ilium. 25. Ischium. 26. Pubis. 27. Thyroid hole. 28. Thigh bone. 29. Trochanter major. 30. Trochanter minor. 31. Knee-pan. 32. Tibia or shin bone. 33 Fibula. 34. Astragalus. 35. Os Calcis or heel-bone. 36. Bones of the tarsus.

Fig. 2. 1. Parietal bone. 2. Sagattil suture. 3. Lambdoidal suture. 4. Occipital bone. 5. Squamous suture. 6. Lower jaw. 7. Vertebræ of the neck. 8. Vertebræ of the back. 9. Vertebræ of the loins. 10. Os Sacrum. 11. Coccyx. 12. Collar bone. 13. Scapula. 14. Spine of scapula. 15. Acromion process of do. 16. Humerus. 17. Ulna. 18. Radius. 19. Carpus or wrist bones. 20. Bones of the metacarpus. 21. Finger bones. 22. Ilium. 23. Ischium. 24. Thigh-bone. 25. Neck of thigh-bone. 26. Trochanter major. 27. Trochanter minor. 28. External Condyle of the thigh-bone. 29. Internal condyle of thigh-bone. 30. Tibia. 31. Fibula. 32. Os Calcaneum or heel-bone. 33. Bones of the tarsus. 34. Bones of the metacarpus.

SKIN BOUND DISEASE. A peculiar affection of infancy, originating in chronic inflammation of the cellular membrane. The whole surface of the body is swollen and hard, and the skin is cold and tight bound.

SKULL. The skull or cranium, as it is termed by anatomists, is the vaulted bony cavity which contains the brain and its prolongations, with their membranes, vessels, and nerves. See *Skeleton.*

SLEEP is that condition of the body in which the senses are not excited or affected by external objects; while the functions of life are regularly performed, although not with the same energy or celerity as is observable in a waking state. Sleep is one of those requisites which are indispensable to the continuance of life and health. Thus, nature has appropriated the night for the recovery of that strength which had been expended by exhausting the irritable principle during the day.

The disposition to sleep is indicated by a drowsiness pervading the whole system. The senses and muscles become languid; the head, unable to retain its exact position, bends towards the chest; the eyelids close, and at length the ideas become confused, and the intellectual faculties are suspended. Sleep not only contributes to re-invigorate the muscular power, but also promotes nutrition, because the organs of digestion act, on the whole, more speedily and effectually in this state of rest than during bodily exercise. Hence many persons are in the habit of taking a short sleep regularly after dinner; a practice which has, by some physicians, been highly recommended for its strengthening the body, and enabling us to undergo additional fatigue; while others have condemned it as tending to induce corpulency, a phlegmatic or plethoric habit, and various indispositions. The relative propriety of this indulgence, however, depends on particular circumstances. Thus, if a person eat solid or hard food, or be naturally of slow digestion, a short sleep, not exceeding an hour at the farthest, may be of advantage; but in cases of debility, and great muscular relaxation, such practice ought by no means to be encouraged, particularly by the young, as each repetition will have an aggravating effect.

In taking this necessary repose, the body ought to be reclined on the left side, in a straight direction, with the limbs slightly bent; the head being rather elevated. The body ought, on no account, to be placed in a crooked position, as it impedes the circulation of the blood, and pre-disposes the system to swoonings, or apoplectic fits. Lying on the back is also improper, as it tends to produce frightful dreams, and many inconveniences, particularly the night mare.

The proper duration of sleep must be regulated according to the different constitutions and ages of individuals. Thus, an infant in the first six months of its existence may be allowed to sleep the greater part of the day, but, after that period, it will be necessary, with the advance of years, gradually to shorten this indulgence. For children, from the age of seven years to that of adolescence, and also for aged persons, eight or nine hours of nightly rest will be necessary. Children, and even infants, are sometimes prevented from going to sleep by a variety of circumstances, which the anxiety and care of the mother only can discover. We therefore conceive it our duty to caution parents and conscientious nurses against employing artificial means, and especially opiates or narcotic substances, whether externally or internally, with a view to lull the child to sleep, as these remedies tend to stupify the latent faculties, and to weaken the intellect of such tender constitutions. The practice of terrifying young people to sleep by threats, or of inducing them by promises, is equally absurd and injudicious; for, in either case, they early acquire habits which have the most baneful influence on their subsequent conduct.

SLOUGH. By slough, surgeons mean a mortified portion of some part of the body, which separates from the healthy parts. Slough may consist either of the skin, and more or less thickness of the parts beneath, or of the condensed cellular substance in the heart of a boil, stye, or other abscess.

SMALL POX may be denominated an eruption of pustules, which suppurate from the eighth to the tenth day; accompanied with fever. All the attempts to prove the antiquity of small pox have failed, and it is the opinion of the most learned physicians of the present day, that the disease first made its appearance in the sixth century. Procopius in A. D. 544, gives the history of a disease which first appeared at Pelusium in Egypt, and which appears to have

been previously unknown. This epidemic appears to have been truly small pox, from the obscure nature of its origin, the difficulty in effecting a cure, the universality of its ravages, and also the complete immunity from second attacks. It is more than probable, that the diffusion of small pox, both through the East and West, was principally attributable to the victories of the Saracen armies, commanded by Mahomet, at the era of the Hegyra, A. D. 662. We are indebted to Rhayes, one of the earliest of the Arabian authors, who flourished in the tenth century, for the first description of this disease. Antiquarians are of opinion that small pox first appeared in England about the year 900. All authors give an account of the great mortality occasioned by this disease wherever it made its appearance, and the consequent terror which every where seized the minds of the people. This was strikingly shown early in the sixteenth century, when this disease was carried to America by some of the successors of Columbus. It is recorded by the Spanish historians, that in an incredible short time after the infection reached Mexico, three millions and a half of people fell victims by it in that kingdom alone.

The increasing prevalence and malignity of the small pox made it an object of investigation to all succeeding authors. The great Sydenham studied this disease with particular care, and by his writings he ably opposed the foolish method then adopted for treating it. Boerhaave was the first author who brought contagion forward as the exciting cause of this disease. Physicians had been acquainted with small pox for a thousand years before any idea had been promulgated that its course could be arrested, and its virulence mitigated by any artificial means. We are indebted to Eastern ingenuity for this improvement in the practice of medicine, and to lady Mary Wortley Montague for its general adoption in this country. The practice of inoculating for the small pox was first tried in London in 1770, having been previously practised at Constantinople about thirty years before; the same century which saw the introduction of this practice also witnessed its fall. Dr Jenner in 1798, made known to the world his discoveries regarding vaccination, after which the practice of inoculation fell into disuse, and has never since been revived by the faculty. By the researches of physicians much important information has been obtained, which it is not necessary to mention in a work of this kind; nor, under existing circumstances, does it appear necessary to give to it the same attention which it received in former times. We shall, therefore, rest satisfied with a general outline—first, of the usual effects of the variolous poison upon the animal economy; secondly, of the modifications which these undergo from the circumstance of former vaccination; thirdly, of inoculation, or the modification occasioned by the mode of its reception into the system.

Of the natural small pox. Stage of the incubation. The contagion of small pox lies hidden in general for twelve days, the extremes being seven and twenty-one. This interval includes the period from the reception of the virus into the body, to the appearance of the eruption. During the greater period of this time, the patient, in many instances, becomes weak, languid, and low spirited, his digestion becomes impaired, and he passes restless nights. In the great majority of cases, no complaint is felt until the eleventh or twelfth day, after exposure to contagion, when a severe shivering takes place, which denotes the setting in of the eruptive fever. The best guide is the sudden manner in which the attack commences, but a severe pain of the loins, pain in the region of the stomach, increased by pressure, accompanied with vomiting, giddiness, and headach, will likewise assist us in forming a correct idea regarding the nature of the disease. At this period children often become sleepy, and epileptic fits sometimes occur. Adults occasionally are seized with delirium. The gait of the patient becomes unsteady, and the expression of his countenance is anxious and haggard. These symptoms denote serious derangement of the brain and nervous system, and betoken considerable danger. There are some rare cases in which malignant symptoms take place during the eruptive fever, and the disease has even terminated fatally before any eruption on the skin has made its appearance.

The period of duration of the initiatory fever may be regarded as invariable. In general, the eruption commences in forty-eight hours from the beginning of the shivering. In some cases it does not make its appearance for seventy-two hours, but in no case does it appear sooner than forty-eight. This fact is of great importance in enabling us to distinguish small pox from the other exanthemata, particularly lichen, nettle-rash, and scarlet fever. The eruption of small pox, in almost all cases, occurs upon the forehead and wrists, and gradually extends itself over the whole body. It is usually completed in twenty-four hours, or in thirty-six at the latest. Whenever the eruption makes its appearance, the febrile symptoms decline, and in cases of extreme mildness are never renewed. In some forms of the disease the symptoms, at this period, undergo a slight remission only. Nosologists have attributed so much importance to the quantity of the eruption, that they have taken this as a basis of distinction, and have therefore divided small-pox into two species, the distinct and confluent. For practical purposes this does not seem sufficient, we therefore prefer a five-fold division; into the distinct, the simple confluent, the malignant confluent, the semi-confluent,

and the modified. In all these there are three divisions of the disease, the first, terminating by the appearance of the eruption, the second, by the ripening of the pustules, and the third, by the falling off of the scabs.

Distinct Small pox. This disease makes its appearance in the form of elevated papulæ. A small vesicle, having a central depression, may, on the third day, be observed on the summit of each pimple. At this period a minute portion of a thin transparent lymph is found contained within it. Around it an inflamed margin or areola takes place, which, when the vesicles are numerous, causes no slight inflammation of the skin in the vicinity, which gives it a damask rose colour, and as the eruption progresses, it produces swelling of the face. Towards the sixth day, the central depression of the vesicles becomes lost, and they acquire a spheroidal form. The pustules will be found to contain a thick matter of a yellowish colour, in consequence of suppuration having occurred. On the seventh day, those pustules which first appear on the face burst, and scabbing takes place over the whole body upon the eighth day from the commencement of the eruption. The severity of the fever depends upon the quantity of the eruption, the constitution of the patient, and the circumstances in which he is situated. In the majority of cases the fever attending the distinct form of small pox is slight, and disappears completely on the sixth day. The skin generally is more or less tender. After the elapse of ten days more the crusts fall off, and the skin now appears of a dark brown colour, but ultimately is restored to its former state. We have detailed, at sufficient length, the usual course of the eruption of distinct small pox, but it is liable to variation. For example, the eruption upon the face takes place more speedily than on any other part of the body, while upon the legs and arms it is generally more slow. The contents of the pustules, likewise, vary in point of consistence, and therefore we find mentioned by authors those distinctions of vesicular, pustular, crystalline, horny, and water pocks.

Arrangement and structure of the pock. In general, variolous papulæ are arranged in groups of three or five, assuming a crescentic or semicircular shape. A complete circle of papulæ is occasionally formed by the union of two groups. The vesicles are constructed in a remarkable manner, being divided into six or eight cells united together in the centre, which for some days is depressed. This depressed centre is quite characteristic of small pox. The poison of small pox is secreted by the walls of these minute cells, and by distending them produces the rupture of the band in the centre, and thereby causes the pustule to rise to a point.

Confluent small pox. At the commencement of the disease there are no apparent differences between this and the former species, except that the patient complains more of languor and oppression. But on the third day the change is perceptible, and the following are the principal peculiarities in the advancement of the confluent disease:

1. Implication of the subjacent cellular membrane. The eyelids become swollen, and about the fifth day the patient is unable to see. The scalp becomes very tense and tender, and a copious flow of saliva takes place from the mouth. The limbs are much swollen. The vesicles on the face run into one continuous bleb, which contains a thin brownish fluid, instead of thick yellow pus. The face appears pale. The vesicles on the trunk and extremities, although they are not actually confluent, seem pale and flaccid, and have no areola. Extensive black and brown scabs are found upon the breaking of the pustules, from which issue a very disagreeable fœtor. Symptoms of great debility take place, accompanied with restlessness, and complete want of sleep. The pulse is also increased in frequency.

Implication of the mucous membranes. In many cases of this disease, the mucous membrane of the nose, mouth, and windpipe is covered by a specific eruption, which follows a similar course with that of the skin. The tongue and mouth are covered with vesicles, which produce the following symptoms, namely, pain of the throat, difficulty of swallowing, hoarseness, difficulty of breathing, cough, along with copious expectoration of a viscid matter. The windpipe becomes more constricted with the advancement of the disease, until finally the passage becomes obstructed, and suffocation speedily takes place. Before the fatal event takes place, the blood is imperfectly oxygenated, as is indicated by the following symptoms, namely, a swollen and purple tongue, lividity of the areola, restlessness, low muttering delirium, and coldness of the extremities.

Implication of the brain and nervous system. Early and violent delirium, attended in many cases with a great inclination to commit suicide, is the principal evidence of this. In variolous delirium the eye is generally red, the pupil contracted, and the expression of the countenance remarkably wild. It is always more severe in the early stage of the disease, and the greater number of cases in which it occurs terminate fatally, and generally by coma.

Malignant small pox. We have given an account in the preceding pages of the phenomena of simple confluence, and when to them are added the symptoms of malignancy and putrescency, the reader may have some idea of the danger. The symptoms denoting these are hemorrhage from the nose, lungs, stomach, and bowels, mortification of the genitals, or of

the extremities. Women are seized with a very profuse flow of the menstrual discharge, and in those who are pregnant abortion generally takes place. As the disease proceeds to maturation, the vesicles fill with a bloody ichor or sanies, instead of pus, and livid spots are interspersed among them. The eye is very often bloodshot. This variety has been denominated the black-pock. In general, malignant small-pox is found accompanied with confluence of eruption, both on the skin and mucous membranes, and with delirium. In some cases, the eruption is of the semi-confluent kind, and the mental faculties continue unaffected to the last. These cases occasionally terminate fatally as early as the fifth, and seldom survive the ninth day of the disease.

Semi-confluent small pox. In nature there is no exact line by which we can distinguish between the distinct and confluent kinds of small pox, as they run into each other by insensible degrees. The name of semi-confluent is given to those cases which are between the perfectly distinct and confluent. This term is applicable, in the first place, to cases in which the eruption is uniform, and when the papulæ do not coalesce before the fifth or sixth day in consequence of this not being sufficiently numerous; and in the second place, to those in which the eruption is in patches, being confluent in one part, and distinct in another.

Secondary fever. In many cases the decline of the confluent and semi-confluent varieties of small pox is attended with a great increase of the constitutional symptoms, constituting what is termed secondary fever. Regarding the circumstances which produce secondary fever, the condition of the surface of the body, and the state of the constitution, are to be taken into consideration. It seems to occur only in those cases in which the cellular membrane has been implicated, and it apparently arises from the inflammatory action continuing in that tissue. In those cases in which the affection of the surface is both deep and extensive, individuals of the strongest constitution will suffer under the secondary fever; but children, and adults of a weakly habit of body, are attacked by it from only a moderate degree of inflammation affecting the surface of the body. Under such circumstances as we have detailed, when, about the eighth or ninth day, the pustules have partially ripened, the surface becomes hot and dry, the pustules are hard and scaly, and the tongue becomes covered with a white fur. The action of the heart and arteries is increased in frequency, the patient passes sleepless nights, and complains much of thirst, which nothing can allay. Secondary fever has now made its appearance, which in its advancement exhibits many varieties of symptoms. Some form of inflammatory action on the surface frequently takes place, of which the most frequent are scarlatina, erysipelas, boils, abscesses, and carbuncles, often of great extent and depth. The cutis vera, or true skin, is partially destroyed by ulceration, and thereby occasions pits and scars. The patient is very much harassed by sloughing sores taking place about the elbows and hips; these weaken his strength, and frequently prove fatal. All these evils are occasionally aggravated by the appearance of ecthyamatous pustules, which occupy the whole surface of the body. The genital organs are often attacked by gangrenous inflammation. In some cases, during the progress of secondary fever, the brain becomes affected. Children die from water in the head; and adults are carried off by inflammation of the brain or coma. In some cases in which a great extent of surface is destroyed, that peculiar state of the nervous system makes its appearance which is well known to medical men as a consequence of severe burns and scalds. The symptoms of it are, tremors affecting the whole body, low muttering delirium, a weak and rapid pulse, a dry tongue thickly coated with a brown matter, the features become collapsed, after which death speedily puts a termination to the sufferings of the patient.

Variolous ophthalmia. In a few cases a very violent form of inflammation of the eye accompanies the secondary fever of small pox. It commences in the interior of the organ, quickly involves all its structures, and in a few days destroys its whole organization. It is seldom we find both eyes affected, but such cases have been witnessed by physicians, and these always terminate in total blindness.

Variolous pleurisy. The effects of secondary fever are not confined to the structures already described. In some cases the organs within the chest become affected, particularly the pleura, which frequently is attacked by inflammation, both acute and chronic; therefore, great attention ought to be paid to the state of the breathing, as by it in some measure we judge of the severity of the disease. Variolous pleurisy frequently proceeds very rapidly to (empyema) the effusion of matter within the chest. In all the varieties and stages of small pox, the tendency to purulent formation is very great, and deserves to be kept in view by the physician.

Modified small pox. This disease is frequently of a very mild nature. Although the pustules are numerous, yet they do not run into each other, but ripen separately, and turn on the fifth day. On the face and trunk the eruption feels hard and seedy, constituting the stone pock of the old authors; that is to say, imperfect suppuration takes place in the pustules, which are surrounded by a small circle. As these pustules only contain a small quantity of matter, it is frequently absorbed, the skin is left horny and elevated for some days afterwards. The eruption upon the extremities can scarcely

be said to pustulate at all, but it is minute and papulous, and ends by the falling off of the skin in the form of scabs. It is seldom that any constitutional symptoms are observed during the ripening of this form of small pox, as the appetite of the patient continues unimpaired, and he enjoys sound sleep. The convalescence of the patient is not retarded by any inflammation of the cellular membrane, and no pits are left which can bear witness to the violence of the disease. By some physicians this disease and chicken pox are believed to be pathologically the same, as both disorders bear a great resemblance to each other.

Complications. *Small pox* is frequently complicated with other diseases, such as inflammation of the lungs, inflammation of the liver, and hooping cough. These complications occur to individuals of a weak and delicate habit of body, whose constitutions are unable to withstand a disease of such severity, and likewise to those of a very plethoric habit of body. In persons of a scrofulous constitution, the secondary fever is very severe, being accompanied with enlargement of the glands, irritable ulcers, and strumous ophthalmia. Persons recovering from small pox are occasionally attacked with fever and erysipelas, and again life is brought into danger.

Prognosis. In this disease the prognosis will depend entirely upon the form which the disease assumes, but the strength of the constitution of the patient must likewise be taken into consideration by the physician. There is little or no danger attending that form of the disease which is called distinct small pox, while the confluent variety is attended, under all circumstances, with very great danger to life. When malignancy and confluence are united, no hope of recovery can be entertained. Regarding the mortality in small pox simply confluent, it may be stated as three in five, and in semi-confluent cases the fatality is in the proportion of one in four. It is calculated that of every four persons who take small pox in the natural way, one dies. Symptoms denoting affection of the brain, windpipe, and lungs, violence of fever, and great determination of blood to the skin and cellular membrane, are always to be considered as unfavourable. Quiet of mind, a tongue free from vesicles, a very tender state of the surface, but, in particular, a small, soft, yielding pulse, may be considered as the most favourable. The period of the greatest danger is from the tenth to the thirteenth day; but to children of a feeble constitution, and especially of a scrofulous disposition, the sequels of the disease are almost as much to be feared as the violence of its crisis.

Causes of death in small pox. 1st. Before the ripening of the pustules, death is occasionally produced by malignant fever. 2d. The chief cause of death between the eighth and twelfth day of the eruption, is inflammation of the windpipe, and consequent suffocation. 3d. Death may take place in three ways during the state of secondary fever: first, by sloughing and destruction of large portions of the skin; secondly, by effusion into the brain; and lastly, by inflammation of the lungs, or windpipe. 4th. After the third week death is sometimes occasioned by mere exhaustion, fever, or erysipelas.

Morbid anatomy. Upon examining the bodies of those who have died of small pox, the morbid appearances are confined almost entirely to the organs within the chest. When small pox terminates fatally about the tenth day, evidences of active inflammation are always discovered in the windpipe; and, at a later period of the disease, one side of the chest is frequently found to contain a large quantity of purulent effusion. It is very seldom that any morbid appearance is observed within the head. The viscera of the abdomen, under all circumstances, are peculiarly exempt in this disease.

Pathology of small pox. *Question of spontaneous origin.* The most distinguished pathologists of the present day are of opinion that small pox is produced by a specific poison, or contagion from without. The old physicians believed that it arose, like other fevers, either from some peculiar state of the atmosphere, or in a diseased condition of the blood and humours; but the weight of evidence is in favour of specific contagion as the invariable origin of small pox.

Contagion of small pox. The infectious effluvia emanate from the lungs, as well as from the skin, at all periods of the disease, from its commencement to the end of the scabbing stage. The scabs, for a great period of time, possess the power of propagating the disease. The variolous effluvia are capable of attachment to the bed, bedding, and clothes, which, if wrapped up and prevented from coming into contact with the air, will retain, for a considerable period, the power of communicating the disease.

Causes of confluence. By some physicians, the mildness or malignity of small pox has been ascribed to differences in the contagion from which it issued. But this idea is erroneous, as it frequently happens that the severest kind of small pox is taken from a case of the mildest kind. We can account for it only by idiosyncrasy, or peculiarity of habit. But it is probable that some other circumstances concur, and these are, delicacy in the structure of the skin and all those causes which promote the flow of blood to the surface of the body. Hence confluence is more frequent upon the face than on any other part, and the disease is always aggravated by exposure to great heat, the use of ardent spirits, the warm bath, and stimuli applied to the skin.

Susceptibility of small pox. Few persons are to be found who, during the whole period of

their lives, are capable of resisting this disease when exposed to its influence. Individuals of all ages are liable to be attacked by it. Many physicians are of opinion that a mother who has already passed through the disease may communicate it to the children.

Diffusion of small pox. The diffusion of small pox is much greater at certain times than at others. The peculiar constitution of the air, which is so favourable to this disease, is not understood by physicians. It is entirely independent of season, and of all states of the atmosphere. The late great epidemic visitations experienced in England, have been in 1781, 1796, 1825, and 1838.

Treatment of Small Pox. In the distinct small pox very little treatment is necessary; but in confluent cases, the danger is always great under any system of treatment. The physician must always keep the following objects in view, namely, to restrain inflammatory excitement, to remove congestions, to allay irritation of the skin, and lastly, to support the system when exhausted, by extensive obstruction of the surface.

Treatment in the initiatory stage. When the disease is known to be small pox, the strict antiphlogistic regimen is to be adopted. Severe pain in the region of the stomach, loins, or head, is frequently relieved by bleeding from the arm, the quantity being determined by the state of the pulse. A brisk purgative containing five grains of calomel, and twenty of the powder of jalap, may be administered with great advantage. Saline draughts should be taken every four hours. Great benefit likewise results from the exhibition of two grains of James's powder every four or six hours. When coldness of the extremities takes place, we must have recourse to the aid of mustard poultices, and at the same time brandy or wine is to be administered internally.

Treatment during the maturative stage. A slow eruption is to be encouraged by frequently bathing the feet with warm water, and when the surface is hot and tender, cooling lotions are highly useful. Pain of the throat may be alleviated by leeches and fomentations. Severe cough, and copious expectoration of puriform mucus, vindicate the propriety of abstracting blood from the arm. Bleeding from the arm is likewise indicated when inflammation of the brain or coma supervene. Purgatives are highly useful during the whole period of this stage. Opiates are extremely beneficial in procuring sleep, and allaying the irritation of the skin. The diet is to be antiphlogistic. Very little light should be admitted into the chamber, and the hair should be cut close. When the pulse is weak, the skin cold, and the vesicles fill slowly, the system is to be supported by the administration of soups, wine, brandy, and the carbonate of ammonia. When symptoms indicating that condition of the fluids and nervous system which we have denominated, putrescency and malignancy, make their appearance, no benefit seems to result from the exhibition of medicine.

Treatment during the stage of decline and secondary fever. It is seldom necessary to have recourse to bleeding at this period, unless inflammation or coma come on; but much good is experienced from the use of purgatives, and of these, calomel and rhubarb, senna and salts, or castor oil, are the most efficacious. When the pustules are very numerous, the strength is to be supported by beef tea, porter, and wine. With the view of absorbing the matter, which, in some instances, is poured out very abundantly, the whole surface of the body should be covered with some dry powder, such as flour, powdered starch, or the impure carbonate of zinc in fine powder. When sloughy and gangrenous sores make their appearance, we must then administer wine, brandy, and opium, together with draughts containing quinine, camphor, and aromatics.

SMELLING. One of the external senses, is that faculty by which we are enabled to distinguish the odour of different substances. It is exercised by means of papillæ of the olfactory nerves, which are distributed throughout the nasal membrane, and convey volatile exhalations to the sensorium, exciting impressions of sweet, sour, fetid, or aromatic substances, according to their respective nature. This sense is intimately connected with that of taste, and, in some respects, is more valuable than the latter, as animal beings are thereby enabled to discover unwholesome substances, without exposing themselves to danger. Thus, the brute creation, and especially dogs, possess a more acute smell than the human race, for this is their only guide in searching for food; while man, being endowed with superior faculties, can dispense with such sagacity. Nevertheless, remarkable instances of acuteness of smell in the human race have occasionally occurred.

SNAKE ROOT, or VIRGINIAN SNAKE ROOT, or the *Aristolochia Serpentaria.* This root is sometimes confounded in prescription with the *senega root*, and it is, like it, a native of the United States, and abounds in Virginia. It is more employed in British practice than the senega; it has an aromatic smell approaching to that of valerian, but more agreeable, and a warm bitterish pungent taste. It is a small light bushy root, consisting of a number of strings or fibres matted together, issuing from one common head, of a brownish colour on the outside, and paler or yellowish within. Its properties or effects are diaphoretic, diuretic, and stimulant, which virtues it yields partially to water, and altogether to proof spirit; and these are supposed to reside in an essential oil.

The dose of the powdered root is from ten grains to thirty, or a wine glassful of the infusion three times a day. The infusion is prepared by macerating six drams of the bruised root in twelve ounces of boiling water for three hours, and then straining.

The Tincture of Snake Root.

Snake root bruised, one ounce and half.
Proof spirit, (whisky or brandy,) one pint.

Macerate for seven days and filter. Two ounces of this tincture should be added to every pint of the strained infusion, and it is frequently united with the infusion of cinchona bark, and other tonic and febrifuge medicines.

Dr Duncan says of snake root, that 'its general action is heating and stimulant, its particular effects to promote the discharge of the skin and urine. In its effects, it therefore coincides with camphor, but seems to be a more permanent stimulus.'

It is used in the forms we have above described, of powder, infusion, and tincture, in intermittent fevers, especially when the paroxysms do not terminate by sweating, and to assist the action of Peruvian bark in obstinate cases. In some parts of America, its tincture is the common morning dram in aguish situations. It is used in typhus and putrid diseases, to support the *vis-vitæ*, and to excite gentle diaphoresis; in exanthematous diseases, when the fever is of the typhoid type, to support the action of the skin, and keep out the eruption and engangrene. Externally it is used as a gargle in putrid sore throat.

It should be borne in mind, that by boiling, the powers of this useful medicine are almost entirely destroyed. Three parts of the infusion, and one of the tincture, being, perhaps, one of the best forms in which it can be used.

Snake root, however, gives out its virtues, especially as a tonic diaphoretic, more effectually to fermented or fermenting liquors than to boiling water; and the medicated beer has the advantage of keeping much longer. In chronic rheumatism, and in the sequel of fevers and intermittents, the following formula will be found truly useful in doses of half a pint three times a day:

Snake Root Beer.

Snake root bruised, four ounces.
Lesser centuary tops
Gale leaves.
Ginger bruised, each one ounce.
New or fermenting table beer, twelve imperial quarts.

Infuse the materials in the beer till the fermentation ceases, or it is ready for bottling. It should be bottled in half-pint stone bottles.

SNEEZING. A convulsive motion of the muscles of the breast, which is caused by the irritation of the membrane lining the nose, by acrid, pungent matters floating in the air; or by certain drugs denominated errhines, and in consequence of which the air is expelled through the nostrils, with a peculiar loud, hissing sound. This muscular agitation arises, either from external or internal stimulants. In the former case, it is produced by the odour of snuff, sweet marjoram, &c. In the latter, it is induced by the acrimony of the fluid which moistens the nasal membrane. The matter expelled by sneezing is derived primarily from the nose and throat, a mucus being constantly exuded into those parts from the pituitary integuments, and secondarily from the breast and lungs.

Sneezing may be advantageously excited by the use of errhines, in certain affections of the head, eyes, &c., or when foreign bodies have accidentally been introduced into the nostrils of children. Such remedies ought, however, to be used with caution, as too frequent a repetition of that convulsive effort will eventually weaken the sense of smelling, or induce bleedings from the nose

SNUFFLES. This disease takes place in very young infants, and presents all the symptoms of common catarrh. The breathing is performed with difficulty, and a peculiar sound issues from the nose. It is produced by exposing the child to cold soon after birth. The child is affected with all the symptoms of fever, its bowels are disordered, and there is also a troublesome cough or sneezing.

Treatment. The child ought to be kept in a moderate temperature, and at the same time bathing in tepid water, and the exhibition of laxative medicines are to be employed. Occasionally an emetic may be administered with much advantage when the disease is obstinate.

SOAP. A composition of fixed alkaline salt, in a state of combination with animal or vegetable oil.

Soap has long been celebrated in medicine, and extensively employed both externally and internally. The colleges recognise two kinds of soap as articles of the materia medica, viz., the hard and the soft soaps. The hard soap used in medicine is composed of soda and olive oil, and is usually obtained from Spain, under the name of *Spanish* or *Castile Soap*. It should be hard, white, and soluble in water and alcohol, inodorous, and having a nauseous alkalescent taste. It is, however, most generally met with in the shops marbled, or tinged with blue and red streaks or spots, but this is the only difference between the marbled and the white. In manufacturing hard soap from olive oil, the usual proportions are 600 pounds of oil, 500 pounds of barilla, and 100 pounds of quicklime.

Soft soap is made of oil and potash. It has the consistence of hogslard, and has the other properties of the hard soap. Good pure soft soap made of vegetable oil and potash, is seldom met with in drug shops, and the common soft

soap made from potash and hogslard or other animal fats, is substituted in its place, and indeed, the patient suffers little from the substitution, as it is seldom employed, and enters into no other composition in the pharmacopeias but the compound sulphur ointment principally used for the cure of the itch. See *Sulphur*.

Having dispatched the soft, what follows may be regarded as applying to the hard, although the soft possesses the same qualities.

Soap taken internally, produces purgative and diuretic effects; and when applied externally, it evinces detergent and stimulant properties. It is, however, more valuable as an external than an internal remedy, modern chemistry having dissipated the errors that obtained, not only among the vulgar, but with the faculty, respecting its solvent properties. It is very generally employed in habitual costiveness, jaundice, and other bilious affections, in the form of pills combined with aloes, rhubarb, and other bitter medicines; externally in the form of liniment to bruises and sprains, &c., and in this latter use it acts as a powerful detergent, and combines the stimulating properties of the alkali with the lubricity of the oil. Dr A. T. Thomson says, 'that he has found much advantage from rubbing the bowels of children in mesenteric fever attended with tumid bellies, with a strong lather of soap every morning.' To this we can subscribe, having been in the habit of recommending the soap liniment in the quantity of half an ounce, and the same quantity of ox gall, to be rubbed over the abdomen night and morning, and we have sometimes covered the whole belly with a soap plaster, with the best effects. The forms in which soap is ordered to be employed are:

Compound Soap Liniment, or the Camphorated Tincture of Soap.

Hard soap in shavings, four ounces.
Camphor, two ounces.
Volatile oil of rosemary, half an ounce.
Strong rectified spirit, two pints.

Digest the soap in the spirits for three days, then add to the filtered liquor the camphor, previously reduced to powder, and the oil, shaking them well together. It should be observed, that before the camphor is added, it may be reduced to powder by pouring upon it a teaspoonful of the strong spirits, and then rubbing it in a mortar, as without this small quantity of spirits, it could not be reduced to fine powder.

The *Anodyne Liniment*, or *Tincture of Soap with Opium*, is prepared in the same way as the preceding, by introducing with the soap shavings two ounces of opium in small pieces, and after the soap and opium have digested six days, strain, and then add the camphor and oil as above directed. Where economy is an object, grain or malt whisky, twenty or twenty-five over proof may be substituted for the rectified spirit, and even the oil be omitted. Indeed, most of the soap liniment sold in the shops does not contain half the quantity of soap or camphor, seldom one drop of the oil, and only common proof spirit. Soap likewise enters into the composition of several pills, &c. These liniments are most valuable family medicines. They are easily prepared, and are far superior to any of the advertised opodeldocs if faithfully prepared. The first may be used in every case of sprain or bruise where the skin is not wounded or abraided, and in the cases of children with large bellies occasioned by disease in the mesenteric glands. The second or anodyne liniment may be employed in the same cases of sprains and bruises, but must be used with caution when rubbed on the bellies of infants, as too great a quantity of the opium might be absorbed. This is, however, a useful remedy in conjunction with others, for rubbing on the abdomen, in cases where adults are suffering from severe colic pains, and in chronic rheumatism, and local pains. A very useful opiate or anodyne liniment may be prepared in one minute, by mixing equal parts of laudanum and the compound soap liniment.

Soap Plaster.—It is best to procure this, and indeed, most other plasters, from respectable shops; but if any incline, it is easily prepared, by melting in a metal pot, over a slow clear fire, one pound of lead plaster sometimes called diachylon, and adding two ounces and a half of shavings of hard soap to the melted plaster, continuing the boiling till they are thoroughly incorporated. This plaster is applied to hard scrofulous tumours, and is a mild discutient. It should be uniformly spread with a warm iron, on thin sheep-skin leather, or moleskin cloth.

Soap is likewise used in the composition of various pills, but in these cases, it is only useful in giving form and consistence to the other ingredients. There is, however, one important internal use of soap that remains to be noticed, viz., in the decomposing metallic poisons taken into the stomach; and for this purpose, a teaspoonful of a solution of soap, in four times its weight of water, may be drank every three or four minutes until a sufficient quantity be taken. It may be employed for this purpose in cases of poisoning by the mineral acids, such as the nitric, muriatic, and sulphuric.

A small portion of soft soap, or the jelly of hard soap introduced into the stockings, will save the feet from blistering in long journeys or marches on foot, and for this purpose is often employed in the army. The jelly of the hard, which is prepared by merely boiling the soap in water, is preferable when the feet are very tender.

SOAP WORT, or the *Saponarea Officinalis* of Linnæus. Decoctions of the root of this

plant, on being sufficiently agitated, produce a saponaceous froth; a similar soapy quality is observable in the extract, and still more manifestly in the leaves, so much, that they have been used by the mendicant monks as a substitute for soap in washing their clothes, and Bergius declares 'it has all the effects of soap itself.' The virtues of this plant have not been yet satisfactorily ascertained, but from some trials we have made from the very authority upon which it has been recommended, we think it deserves especial notice, not only from domestic practitioners, but from the faculty. Boerhaave entertained a high opinion of its efficacy in jaundice and other visceral obstructions; and we have certainly known the decoction of the whole plant, including the roots, prepared in the same way and proportions as the decoction of sarsaparilla. Begun in doses of a wine glassful three times a day, and gradually increased to one pint and a half in the course of twenty-four hours, it removes obstinate cutaneous eruptions, and relieves pains occasioned by the injudicious use of mercury. It has been recommended in gout, rheumatism, and syphillis, on high authority, and the decoction has been reported to have cured the latter disease without mercury. It is easily prepared; see *Sarsaparilla Decoction.* We intend to give it a further trial, and recommend others to do the same in all those cases in which sarsaparilla is employed.

SODA, Fossil, or MINERAL ALKALI. A peculiar salt, which is found native in various parts of the world; but, as the quantity thus obtained is inadequate to its extensive consumption, various methods have been devised for procuring it from sea salt, and also by the burning of the salt wort, together with other saline plants which grow in the vicinity of the sea coast. Few articles are of greater importance to the arts, manufactures, and domestic economy, than soda. It is indispensably necessary for making hard soap. The crystals of soda are not less useful in a medicinal point of view. Thus, a solution of this salt is an excellent gargle for cleansing the throat, mouth, and gums, both in a sound, and in a diseased or ulcerated state, while it whitens the teeth, and dissolves all incrustations that may be formed on their surface, without injuring their enamel. And if a small quantity of this liquid be occasionally swallowed after washing the fauces, it is said effectually to remove a fetid breath. Soda is, in many instances, preferable to magnesia for correcting acidity in the stomach; and it is even asserted that it prevents the gout, gravel, stone, and similar disorders. Lastly, if the fossil alkali be mixed with cream of tartar, in the proportion of 14 parts of the former to 12 of the latter, it furnishes one of the mildest laxatives, namely, the Rochelle salt.

SODA POWDERS have been much used in different diseases of the digestive organs. They may be used in the following manner: dissolve two scruples of the carbonate of soda in three ounces of water, and thirty-five grains of tartaric acid in an equal quantity of water in another glass; add one solution to the other, and let them be drank quickly during the state of effervescence.

SODA WATER, is water impregnated with carbonic acid. By the aid of pressure, water can absorb six times its bulk of carbonic acid. Soda water may be taken at any time except during meals or immediately after them, as the carbonic acid which it contains, being disengaged, inflates the stomach and interrupts the conversion of the food into chyle.

SOLID FOOD, may be denominated all kinds of food that need mastication, opposed to liquid or spoon diet.

SOLIDS, the bones, ligaments, membranes, muscles, nerves, and vessels.

SOLOMON'S SEAL. This plant, but especially the root bruised, is well known to pugilists as an excellent application to bruises, or in vulgar phrase, for curing black eyes. The same application may, however, be made to any other bruise or effusion of blood under the skin in any other part of the body. The mode of forming it into a poultice, will be found in the article *Cataplasm.* The root of course must be fresh, and druggists in great towns keep it in earth or sand, and those who have not a garden, grow it in pots or boxes. The leaves dried and powdered, possess astringent and antidysenteric properties, and if beaten into a conserve with sugar while it is green, it may be used in leucorrhea or whites. The seeds are purgative and emetic, in doses of from twelve to fourteen grains. While the leaves in small doses are astringent, in larger ones, such as half a dram of the powder, they operate as a purgative.

SOLUTION. When the sugar or acetate of lead is dissolved in water, the mixture is called a solution of sugar of lead, or acetate of lead. From this example, it appears a solution in pharmacy means an intimate commixture of solid bodies with fluids, into one seeming homogeneous liquor, as the solution of the sugar of lead in water still retains all the external appearances of water. The dissolving fluid, whether it be water or any other fluid, is called the menstruum or solvent.

SOMNAMBULISM, or SLEEP WALKING. A very remarkable disorder, proceeding from a disturbed imagination; and in which the patient's eyes are widely open, though he can discern no object. At the same time he has the power of recollection, directs his walks to some particular spot, and after arriving at the end of his nocturnal journey, he retires to bed, apparently composed, and

sleeps calmly during the remainder of the night.

Dr Cullen considers this affection as an active species of the nightmare, and consequently as originating from the same source.

The causes, however, which have generally been supposed to induce somnambulism, are, a very plethoric state of the body, determination of blood towards the head, a disturbed imagination in consequence of horrid dreams, or particular causes that harass the mind during sleep, and, according to a distinguished continental author, lesions of the brain.

Cure. In those cases where plethora is the cause, the bowels ought to be opened by a powerful cathartic, and blood ought likewise to be abstracted from the arm, after which small doses of calomel and rhubarb have been prescribed with much advantage. Electricity and frequent bathing have sometimes proved very efficacious. It will be advisable to place a vessel of water near to the bed side of the patient, so that by the sudden stimulus on the soles of his feet, he may be immediately awakened. Should these remedies fail of success, it has been strongly recommended, by medical writers, to watch the patient, and to chastise him as often as he is about to renew his nocturnal rambles; yet we do not approve of such coercive measures.

SOOT, or *Faligo.* In consulting the older medical writers, even those of the last century, the general reader will often find soot an ingredient in their prescriptions. Soot is a carbonaceous volatile matter, arising from coals, wood, and other fuel, along with the smoke, and differs somewhat in the proportion of its constituents, from the different kinds of fuel from which it is produced. It is used as a material for making muriate of ammonia, and doubtless has some medical properties. In Lewis' translation of the Edinburgh Pharmacopeia, published in 1748, we find the *Tinctura Fuliginis* or *Tincture of Soot,* ordered to be prepared as follows:

> Shining wood soot, one ounce.
> Assafœtida half an ounce.
> French brandy, one pint.

After four days' digestion, strain the tincture. This preparation is honoured with an approving note, and Fuller in his domestic pharmacopeia, orde s a tincture made of the same ingredients, with the addition of half an ounce of myrrh, which he calls the *tinctura hysterica;* but Dr Lewis says, 'the myrrh had better be omitted, and the directions of the college as above followed.' We have known more than one or two old spinsters who have affirmed, that they derived more benefit from this tincture with the soot, than any other of the fœtid tinctures without it. Our colleges may have made too free and sweeping rejections, and believing that this in some cases is true, we have inserted the formula. The tincture of soot may be used in doses of from thirty drops to a tea spoonful, or even two, in ginger or peppermint tea. Half an ounce of soot in two or three ounces of mucilage, is one of the very best enemas for effecting a separation of small worms from the folds of the rectum. The soot may be rendered liquid, by rubbing it up in one ounce of boiling water, and gradually adding the mucilage, continuing the rubbing.

SOPHISTICATION. This is another term for adulteration, and the sophisticator and adulterator are one and the same person. In sophisticating medicines, which is but too common, the cheat is carried on with so much address in many cases as to elude detection.

SORE EARS OF CHILDREN. This term is generally used to designate those runnings which take place from behind the ears of children. These sores are frequently extremely painful, and accompanied with a very considerable discharge of matter. When these runnings occur during dentition, they are generally salutary, as they tend to mitigate the irritation which is caused by that process. The stopping of these runnings is always attended with danger, and therefore ought never to be adopted. In some cases, it is even advisable to establish sores behind the ears, which can always easily be effected by means of small blisters. When it is deemed necessary to heal up these sores, it can be easily accomplished by the application of astringent lotions, composed of sulphate of zinc and rose water, in the proportion of two grains of the former to one ounce of the latter; or of sulphate of alum and distilled water. When the neck and parts in the neighbourhood are excoriated by the falling down of the acrid matter, great benefit will ensue from the use of tutty, with the view of absorbing the discharge. If there should be much inflammation about the ears, with fiery-looking pustules, it will be necessary to apply a poultice made of bread and milk, and after the inflammation has been subdued, we may then apply any of the astringent lotions already mentioned.

SORE MOUTH. See *Thrush* and *Stormacacé.*

SORE NIPPLES. See *Nipples.*

SORE THROAT. See *Throat.*

SOUND. An instrument which is introduced into the bladder, for the purpose of ascertaining the presence of a calculus.

SOUR CROUT. A preparation of cabbage, which, in long voyages, has been found very efficacious as a preservative from sea scurvy.

SOW BREAD, or *Cyclamen Europœum.* This plant, so named because swine feed on it, is yet an *acrid vegetable poison* to man.

The *symptoms* are, severe pain in the belly, followed by violent tormina and twisting, with purging and bloody stools, accompanied with

cold sweats and convulsions. Vomiting is to be induced by tickling the throat with a feather, and by large draughts of demulcent liquids, such as strong linseed tea; an enema of castor oil and linseed tea should be administered, and the patient should drink freely of thin sago, barley water, &c. A large sinapism should be placed over the whole belly, and kept on as long as the patient can bear it, and if there are symptoms of inflammation, the patient must be bled, and the other antiphlogistic means used.

SOW THISTLE, or the *Sonchus Oleraceus.* This plant boiled may be eaten as a substitute for cabbage, or common greens, or kale, and by some it is considered preferable to either. All the species of *sonchus* abound with a milky juice, which is very bitter, but of this bitterness the sow thistle is deprived by boiling. The juice was employed by Linnæus and others as a diuretic. Dissolved in wine, it acts as an astringent, and allays vomiting and diarrhea. Inspissated, or formed into an extract, it possesses the virtues of the juice of lettuce or lactucarium in a minor degree.

SPASM. An irregular and involuntary contraction of all the muscles, generally accompanied with painful sensations. This complaint has, of late years, made such rapid and formidable progress, particularly among the female sex, as to demand serious attention. Spasms are either general, when many, or most, of the muscles are attacked (as in tetanus, catalepsis, &c.) or partial, when the contraction is confined to single muscles, for instance, of the jaw, of the throat, and other parts. Among the chief predisposing causes is an irritable, weak, nervous system; while the occasional ones are, passions of the mind, injury produced by external violence, by poisons of every description, worms, suppressed perspiration, repelled cutaneous eruptions, and whatever may induce an increased action of the nerves and muscles. Nothing, indeed, has so evidently contributed to the frequency of this affliction as the defective modern education, particularly of females; according to which, children are regarded as adults; they are allowed to read seductive books; to dress in an improper, or at least, unbecoming manner; and even infants are suffered to partake of tea, wine, and spirituous liquors, under the pretext of using them as medicines. The danger attending spasmodic paroxysms depends on the greater or less violence of the attack. If they proceed from too profuse evacuations, there is great danger to be apprehended, as the patient is already exhausted. When spasms are occasioned by the taking of mineral or animal poisons, or if the patient labour under an acute fever, the event is generally fatal.

Treatment. The first step will be to remove the irritating cause; and next, to restore tone to the organs. Thus, if the spasm originate from an injury by a sharp instrument, such as a needle, especially if a piece of it remain in the wound, it ought to be immediately extracted. During the fit, an injection, composed of decoction of chamomile flowers and assafœtida, in the proportion of one pint of the former to one dram of the latter, is to be administered, and repeated every two or three hours. Recourse may be had to warm baths, frictions, and the application of volatile liniments. If the teeth are not too closely shut, half a tea spoonful of either of the tinctures of castor, assafœtida, or valerian, diluted with a table spoonful of water, may be introduced into the mouth. Next, it will be necessary to regulate the treatment according to the cause of the malady. If it arise from a suppression of cutaneous disorders, blistering plasters, and often artificial issues, will be the most proper means of restoring the discharge of humours. If it proceed from too tight shoes, or other garments, the part should be rubbed with warm oil, till it becomes soft, and then a tight bandage be applied around it. The leg should afterwards be bathed in cold water impregnated with scales of iron, or rubbed with volatile liniment. If induced by worms, suitable remedies must be administered. But, where it originates from mental causes, the cure itself ought to consist of moral remedies; as physical means would, in general, be found inadequate. With a view to re-invigorate the system, and to prevent future attacks, decoctions of quassia, worm-wood, chamomile, Peruvian bark, valerian, and other antispasmodics, may be taken with advantage, especially when conjoined with cold bathing; and in cases of worms, with the liberal use of port wine, a glass of which may, for that purpose, be drunk every morning, on an empty stomach.

SPASMODIC. Of the nature of spasm; applied by physicians to those diseases in which spasm is a principal symptom; therefore we speak of spasmodic cough, spasmodic asthma.

SPECIFIC. A medicinal drug or compound, the virtue and effect of which is supposed to be peculiarly adapted to certain disorders; or they are said to be calculated to expel some hurtful humours; or, lastly, they have been observed to remove the cause of a determinate disease, in consequence of their speedy action, though inexplicable to mankind. Thus, the Peruvian bark is reputed to be a specific in intermittent fevers or agues; opium, for mitigating pain; magnesia, for absorbing acidity in the stomach, and relieving the heartburn; as well as the various antidotes. Although impositions of a dangerous tendency are practised with specifics, especially those advertised in the daily prints, yet it cannot be denied that such remedies, in certain cases, may be useful; while in others they may be unavailing, and often attended with mischievous effects. In those

diseases which uniformly arise from the same cause, as in agues, the small pox, measles, &c.; the utility, or rather admissibility, of specifics, may be rationally, though hypothetically, inferred. But, even in such instances, how is it in the power of those who are unacquainted with the laws of human organization, to determine either the propriety, or dose, of a powerful medicine, requisite in a particular case? It appears, therefore, to be equally hazardous, as to entrust a man's whole life and fortune to the capricious wheel of the lottery. Nay, the more or less beneficial operation of drugs, frequently depends on a trifling incidental cause, or circumstance, which often eludes the attention of the most vigilant physician; and yet unprofessional persons are apt to believe, that there is no easier trade than that of dispensing medicine; although medical men, when occasionally attacked with disease, rarely venture to prescribe for themselves. So far indeed, the vulgar apparently possess advantages superior to those claimed by the profession. On the other hand, the enlightened part of the community know the value of medical assistance in the hour of danger, and barely commiserate the blind believers in quack medicines, without contributing the least towards eradicating such pernicious weeds. We shall conclude with observing, that, as the drinking of wine, or other intoxicating liquor, does not affect every person in a similar, or uniform manner, so is the operation of medicines necessarily attended with different effects, on various constitutions; and even on the same patient at different times.

SPECKS ON THE EYE. Are small opaque spots, on the clear part of that organ, most frequently the result of severe previous inflammation. In those cases in which the adventitious matter is seated in the superficial layers of the cornea, a solution of the nitrate of silver may be used with advantage. The strength of the solution, at first, may be two grains of the nitrate of silver, to one ounce of distilled water, but it may be gradually increased to four grains of the former to one ounce of the latter. When the effusion is seated in the deep layers of the cornea, it is very seldom that the deformity can be removed by any means.

SPECTACLES. A well known and useful optical contrivance, in order to aid the eyes of the aged, or young invalids of defective vision; by means of two appropriate lenses. Those used by short-sighted persons are generally concave; as the spectacles employed by the far-sighted are convex. The choice of spectacles being an object of great importance, to all who are anxious to preserve their eyes, we shall give a few rules, which, we trust, will be found useful to all who consult this article. By careful attention to such directions, the failure of sight may be retarded, and the eyes greatly relieved. Those who stand in need of spectacles ought, at first, always to choose such as represent objects without enlarging or diminishing them; and which, on being placed near the eye, exhibit printed characters clearly and distinctly, without straining that organ. It will, therefore, in every instance, be advisable to consult the artist of whom the glasses are purchased. Although every person must eventually determine what lenses afford him the most accurate vision, the former will thus be enabled to accommodate them to the eye of the latter with greater certainty and advantage. Besides, the fatigue of trying a variety of glasses will thus be obviated; and the purchaser will procure a pair best adapted to the structure of his eye. Short-sighted persons ought always to make a very gradual allowance in changing their spectacles, so as to select others that magnify a little more than the preceding pair, though somewhat less distinctly, without obscuring the object. Thus their sight will be imperceptibly improved; and, after making use of less concave lenses, the defect of vision may, in process of time, be entirely remedied. These transitions, however, ought not to be sudden; lest the resources of art should be too early exhausted. And, as it would be difficult to meet either with a pair of glasses in the shops that exactly fit both eyes, or with a person whose organs of sight are both of a size and construction perfectly equal, it rationally follows, that such important choice should be separately made, with respect to each of these useful organs.

Spectacles are generally transparent and colourless; though sometimes green lenses are preferred by those whose eyes are unable to support a vivid light. Such colour is believed to be the most soothing to the human eye; though it tends at first, in some degree, to darken the object. Hence, this shade will prove beneficial only to persons who possess strong, but irritable eyes; yet even such individuals should not indulge in it, if light coloured objects continue to assume a reddish tinge, after having tried the experiment for a few days. In all cases, however, spectacles ought to be employed only in writing, reading, or similar occupations that render this artificial aid necessary; and during which, the eye is retained at a uniform distance.

SPERMACETI, a flaky, whitish, somewhat unctuous substance, and nearly destitute of smell, being obtained from the head of the physeter macro-cephalus, a species of whale. As the manner of preparing this expensive article is studiously concealed, we shall only observe, that good spermaceti is perfectly white, glossy, and semi-transparent; rather soft and oily to the touch, though friable and dry; its taste resembles that of fresh butter, and its smell is faint, like that of tallow. It is said to be often adul-

terated with wax; but such fraud may be speedily detected by the peculiar smell of the latter substance, and by the dullness of the colour. A preparation of the oil obtained from the tail of the whale is likewise vended for genuine spermaceti; but, as it assumes a yellow shade on exposure to the air, such imposition may be easily discovered. It will, however, be necessary, in all cases, to preserve spermaceti in vessels closely secluded from the atmosphere, as this drug is apt to become rancid, and to acquire a disagreeable colour; though it may be restored to its original purity by steeping it in a ley composed of quicklime and alkaline salts. The late Dr Gibbes proposed, in 1794, to convert animal muscles into a fatty substance, resembling spermaceti. His chemical process consists in enclosing the carcase of a horse, cow, &c. in a box perforated with holes, and immersing it in a clear stream or river, for the space of a month, or longer, when it will be converted into a mass of unctuous matter. A certain portion of nitrous acid is next poured on this cheesy substance, in order to discharge the offensive smell, and separate the fat in a pure, though somewhat yellow state. Such colour may, however, be removed, and the whole tolerably bleached, by submitting it to the action of muriatic acid. The same author farther observes, that this remarkable conversion may be effected in the course of three days, by pouring nitrous acid on a piece of lean meat. The illustrious lord Bacon mentions the following curious circumstance in his work, entitled Sylva Sylvarum; namely, that the flesh of animals may be changed into a fatty substance by cutting it in pieces, which are to be put in a glass covered with parchment, and thus allowed to stand six or seven hours in boiling water. It may, says the same illustrious author, be an experiment of profit for making grease or fat, for many purposes; but then it must be made of such flesh as is not edible, as horses, dogs, bears, foxes, badgers, &c. It appears, likewise, from Dr Gibbes' Memoir, that the putrefaction process is not necessary for effecting this change; as it would waste a considerable portion of flesh, that might serve to form a larger mass of waxy substance.

Great quantities of spermaceti are annually consumed in the manufacture of candles and tapers, which are preferable to those made of wax; as the former burn not only brighter, and are of a finer colour, but, when genuine, do not stain or grease the finest silks, linens, or cottons. This drug is also used as a cosmetic, for softening and cleansing the skin. In medicine, it is chiefly recommended in the form of an emulsion, with distilled waters and the yolk of eggs, for relieving various affections of the intestines; coughs arising from defluxions of acrid humours, &c. Spermaceti is also dissolved in oils, and beneficially applied to bruises, sprains, and similar injuries, as it contributes to mitigate pain.

SPHACELUS. By this word surgeons mean complete mortification, which is generally preceded by a stage of the disorder denominated grangrene.

SPINAGE, OR SPINACH, the common *spinacia oleracia*, an exotic plant, cultivated in Britain, for culinary purposes. If intended for winter use, it is propagated by the seed in beds of light rich earth, towards the end of July, and during moist weather. When the young plants appear, they must be carefully weeded, and thinned to the distance of five inches. In October they will be fit for use; when the longer leaves only should be gathered, those in the centre being suffered to grow to a larger size; so that a bed, thus managed, will afford a supply of this vegetable during the winter, till the spinage sown for spring use is fit for the table, which generally succeeds in April.

A celebrated author remarks, that the agriculturists of Germany strongly recommend the culture of the common spinage, on land which has been once ploughed after a crop of barley; where it will produce early and excellent spring food, either for sheep, hogs, or cattle. It may, farther, be mown two or three times during the summer, and afterwards be fed off by sheep, or suffered to run to seed. This vegetable is greatly esteemed at the table, but when dressed with melted butter, it passes speedily through the bowels without being duly digested, and consequently affords little nutriment. It is particularly improper for persons of weak and relaxed habits, as it debilitates the alimentary canal, excites looseness, and not unfrequently occasions the heart burn, or acidity in the stomach.

SPINE. The spine is a bony pillar placed at the posterior and central part of the trunk, and extending from the head to the terminating coccygeal bone. It may be conveniently subdivided into two great sub-divisions, a superior and inferior. The superior is flexible, and composed of twenty-four bones, or true vertebræ; the inferior, generally more fixed, is composed of nine bones, or false vertebræ. Although superiorly, it is capable of bending in all directions, it is yet very solid, and is excavated throughout its whole length by the spinal canal which lodges the spinal marrow. It is rounded in front, irregular behind, and perforated on the sides with a great number of holes.

The superior division of the column consists of twenty-four short and very angular bones, placed one above the other, named vertebræ, and twenty-two fibro-cartilages situated between the bodies of these vertebræ, at once connecting them firmly to each other, and assisting considerably to lengthen the column. The

elasticity and flexibility of this part of the spine depends entirely on the presence of these fibro-cartilaginous bodies. The inferior division of the spine is divided into two regions, a sacral and coccygeal. These in the adult are usually neither flexible nor elastic; the sacral vertebræ are fixed, but between them and the coccygeal there is a degree of motion.

SPINE, CURVATURE OF. This disease depends upon a morbid alteration of the cancellated structure of any of the vertebræ, or it may arise from ulceration of the intervertebral substance ; but in whatever texture it begins, it generally leads to caries of the spine. In whatever manner the disease commences, if it be not checked in its progress, it occasions a destruction of the bodies of the vertebræ and inter vertebral substance, leaving, as a distinguished surgeon correctly says, the posterior parts of the vertebræ unaffected by it; the necessary consequence of which is an incurvation of the spine forward, and a projection of the spinous processes posteriorly. The same author adverts also to the frequent and early complication of the disease with chronic inflammation of the membranes of the spinal cord, and even of the latter organ itself, which in consequence of the curvature, and, as we have reason to believe, still oftener in consequence of the disease around the spine, quite independently of the mechanical effect of the curvature itself, becomes disqualified for the performance of its very important function. This observation is founded on the fact of many cases being upon record, in which the most remarkable degrees of curvature, from destruction of the bodies of the vertebræ, were not accompanied by paralysis.

Frequently in caries of the spine, and particularly in scrofulous cases commencing in the bones, the formation of matter takes place at a very early period of the disease, and, in other examples, not until a very late stage of it.

The greater number of individuals afflicted with this disease are infants or children ; yet many adults also suffer from it, especially those who have been weakened by fever, or by a long course of mercury. It is very uncommon for it to make its appearance after the age of forty-five.

With regard to the general symptoms of caries of the spine, we may remark, that in the early stage the patient has pain and tenderness in that part of the spine which is the seat of the disease, and perhaps these symptoms will be most strongly marked in those cases in which the disease commences in the intervertebral substance. If the patient be old enough to describe his complaints, he will say that he is troubled with a feeling of tightness of the chest, uneasy sensations at the pit of the stomach, a torpid sluggish state of the intestinal canal, probably some disturbance in the functions of the urinary bladder, and weakness, aching, numbness, and cramps in the muscles of the lower extremities. As very similar symptoms may arise from other causes, and as some of the information respecting the symptoms already mentioned, as belonging to the early stage cannot always be procured, because the patient may be an infant, therefore, until some inequality or projection becomes apparent on the spine itself, and until the want of control over the muscles of the lower limbs and the paralysis are more established, the diagnosis is generally obscure. The muscles and nerves affected with paralysis, must, of course, be those which derive their nerves from the portion of the spinal cord below the seat of the disease. In general, there is impairment of motion and sensibility together; but sometimes one limb will retain more or less sensibility, yet be deprived of the faculty of motion. In different cases, the symptoms vary considerably. Sometimes there is great pain in the part affected, sometimes none. In many instances, the paralysis comes on early, and frequently even before there is any material curvature forwards ; but, in some cases, we perceive the spinous processes making a considerable angle posteriorly, in consequence of the bend of the spine forwards, and the destruction of the bodies of the diseased vertebræ, yet without any paralysis having taken place. The real cause of most of the symptoms, is a morbid state of the spine and parts connected with it, accompanied with irritation and disease, and perhaps sometimes with compression of the spinal cord itself. The diseased state of the spine always precedes the deformity observable in the spinal column itself. Indeed the curvature forward, in such a degree as to produce the angular projection of the spinous processes posteriorly, cannot take place until the bodies of the diseased vertebræ have been seriously injured by caries. The deformity is of a peculiar nature, and such as nothing can produce except the destruction of one or more of the bodies of the vertebræ, the spine being bent forwards, so as to form an angle backwards. The body of one, and in some cases, the bodies of several vertebræ may be entirely absorbed, allowing those above and below the deficiency to join, and to be united by anchylosis. The spinous processes may likewise be soldered together, and the sides of the chest pressed downwards and backwards, so as to diminish, in a very serious manner, the dimensions of the upper part of the cavity of the abdomen. Curvatures frequently take place from other causes but in these cases there is not an angular projection of the spinous processes; but the bend forms the segment of a circle, generally affecting a great extent of the spine, and often assuming the lateral inclination or spiral figures with a very conspicuous leaning above towards the right side.

In the greater number of cases of scrofulous spine, palsy of the lower extremities, and even a more extensive paralysis, will come on sooner or later; but in rickets, when the spine may be said to be deformed more from an imperfect development of the bones, than from disease of them, paralysis of the legs is not produced, however great the lateral or spiral curvature of the back. Notwithstanding what we have said, we are not to conclude that every bend of the spine forward is occasioned by scrofulous disease. From the observations of Sir Benjamin Brodie, he is of opinion that a curvature of the spine in this direction may arise from other causes, as a weakly condition of the muscles, or a ricketty affection of the bones. Generally, he says, in such cases, the curvature occupies the whole of the spine, which assumes the form of a segment of a circle. Occasionally the bend occupies only a portion of the spine, generally that composed of the superior lumbar and inferior dorsal vertebræ, the curvature being always gradual, not angular, a circumstance in which it differs particularly from the curvature resulting from caries.

The formation of an abscess around the diseased bone is a very common effect of caries of the spine. Yet this disease may go on to a great extent, and even so as to destroy the bodies of several vertebræ, without any abscess being produced. Disease of the spine may continue for years without suppuration taking place; but abscesses occasionally lie upon the diseased bones, and are not detected till after death, when the body is examined.

The most approved mode of treating this disease, consists in employing, in the early stage, cupping or leeches over the part, succeeded by the application of blisters, caustic issues, a seton, or the moxa.

With the local abstraction of blood are to be joined other mild antiphlogistic remedies, particularly aperient medicines, composed of rhubarb, and the carbonate of soda, castor oil, or the sulphate of magnesia. After these means have been used for some time, counter-irritation, or issues, setons, a perpetual blister, or the moxa, may be tried; and these remedies may be assisted by the exhibition of bark, chalybeates, and iodine, with the benefit of a light nutritious diet, and pure country air if it can be conveniently obtained. In the treatment of this disease, one thing is quite essential, namely, the diseased spine should be kept as much at rest as possible, and therefore the patient ought to remain very much in the recumbent position. When the disease has existed a considerable time, and a conspicuous angular curvature has taken place, the patient ought to recline on his side, instead of on his back; or if this position be disagreeable, he should not lie on an absolutely flat surface, but be supported with pillows, so that the posture in which he is placed may have no tendency to restore the spine to its original figure, which would only have the injurious effect of disturbing the completion of the anchylosis, by which alone the cure can be accomplished.

Of late years, issues and blisters, from having been used in these cases for too great a length of time, and without discrimination, have therefore been much condemned by some practitioners. Yet, that they frequently produce great benefit, we are convinced by repeated experience. We frequently find paralysis suddenly cease, or diminish, on the application of a blister. At the same time, we are of opinion, that issues are chiefly useful in the early stage of the disease, with the view of preventing suppuration, and that they are of no service after an abscess has actually formed.

SPINE, Divided, or *Spina Bifida*. May be defined a disease attended with an incomplete state of some of the vertebræ, and a fluid swelling which is generally situated over the lower lumbar, occasionally over the dorsal and cervical ones, and in some cases it occurs over the sacrum. The same name has likewise been given to a similar tumour, which sometimes takes place on the heads of children, accompanied with an imperfect ossification of a part of the cranium. The malformation of the spine appears to consist in a deficiency of one or more of the spinous processes. In a case reported by a celebrated German author, these processes were wanting throughout the whole length of the vertebral column. The Arabians were the first who treated of this disease, and they erroneously ascribed the deficiency of one or more of the spinous processes to the tumour, while at the present day it is well known that the incomplete state of the affected vertebræ is a congenital malformation, and that the swelling is only an effect. The longer the disease continues, the tumour generally becomes larger and larger. This disease may be considered as an affliction which only occurs in children. Very few attain adult age with this incurable disorder.

The swelling, as we formerly mentioned, is most commonly situated at the lower part of the spinal canal, generally at the place where the lumbar vertebræ join the sacrum. The fluid, which it contains, has the appearance of serum, being a little more liquid than the white of egg, and generally coagulable. In general it is limpid and colourless, but sometimes it is turbid, and tinged with blood. On pressing the tumour the feeling of fluctuation is perceived, and a preternatural space may also felt be existing between some of the spinous processes. The fluid is contained in a kind of cyst, which is composed of the continuation of the dura mater, covering the spinal canal, and is generally closely adherent to the integuments.

According to a celebrated author, spina bifida is generally attended with water in the head, and the enlargement of the cranium has been known to sustain a considerable decrease, after the accidental rupture of the tumour of the spine. Spina bifida generally takes place on the lower part of the spine, but it sometimes occurs on the cervical vertebræ, in which situation the tumours have the same peculiar marks as those near the sacrum. This disease is one of the most incurable nature, for with the exception of two or three cases, there is not any case upon record which either got well of itself, or was benefited by any mode of treatment. In general, opening the tumour, either with caustics, or cutting instruments, has only hastened the death of the patient. Whether the tumour be opened or not, this disease is one of the most mortal to which children are exposed. When attacked with it they very seldom attain the age of three years, but, after lingering on for a few months from their birth, die suddenly. It has been alleged, that children afflicted with this disease always have their legs affected with paralysis. This, however, is not the case, for the largest spina bifida which was ever seen was unaccompanied with any weakness of the legs. Notwithstanding it is a fact, that many infants affected with spina bifida have paralysis of the legs, and can neither retain their fæces nor urine.

Caustic issues, at a short distance from the swelling, have been employed, but we are not acquainted with any facts in favour of this practice. Gentle pressure applied to the tumour from its commencement, with the view of producing absorption of the fluids, and preventing the distention of the unsupported dura mater, has likewise been had recourse to, but not with any permanent benefit.

SPIRITS. A general name given to ardent liquors obtained by distillation. Spirits are divided into two classes, namely, foreign and British; the former includes arrack, brandy, and rum, the latter comprehends gin, whiskey, and the various species of malt spirits known under the name of British brandy, &c. But previously to their being consumed, or even offered for sale, they are rectified, or repeatedly distilled with the addition of alkaline salts, so as to bring them to the requisite degree of proof, in which state one hundred parts of pure spirit ought to consist of fifty-five parts of alcohol, or spirit of wine, and forty-five of distilled water. As, however, such salts deprive the liquor of its natural vinous flavour, the latter is generally mixed with sweet spirit of nitre, until it acquire a degree of vinosity that renders it little inferior to French brandy. Surprising as it may appear to many of our readers who are unacquainted with the vegetable kingdom, we may positively affirm, that a sufficient quantity of wild neglected fruit annually grows in this country to produce an adequate supply of spirituous liquor, without using any bread corn for such a wasteful purpose. Of this description, in particular, are the berries of the dog-rose tree, and numerous other native shrubs which are well known to botanists.

Good pure spirits ought to be perfectly clear, of a pleasant and strong, though not pungent odour, and of a somewhat vinous taste. When taken in small quantities, (and properly diluted) after violent exertions they are preferable to strong beer; but they should never be used by way of custom, except after eating heavy food, such as pork, ham, goose, duck, fish, &c.; for if used constantly, instead of promoting, they greatly impede, and at length totally impair digestion. Their intoxicating qualities render them highly improper during the summer, particularly if they have been distilled over strong spices; being thus rendered more ardent, and destructive to health; so that they frequently occasion premature old age.

SPIRIT OF WINE. An ardent, colourless liquor, destitute of any peculiar flavour. It may be obtained by distilling the farinaceous or saccharine roots, as well as the pulpy fruit of vegetables in general, by means of a common still, but more effectually in what is termed a water bath; after which the spirituous fluid is purified by repeated rectification, and when deprived of all its aqueous particles it is called alcohol. This expensive liquor is principally employed for dissolving gum resins in the preparation of varnishes; for separating resins from vegetable matters containing them; and also for making essences, tinctures, elixirs, and various other compounds for medicinal use. It may likewise be applied with advantage to different parts of the body, especially in sprains and bruises, as it strengthens the vessels; but if inadvertently swallowed in a pure state, and in a large quantity, it corrugates the membranous parts of the stomach, being attended with a temporary suspension of their functions, and sometimes even inducing apoplexy or palsy, which generally ends in death. Hence spirit of wine ought to be preserved with the greatest caution, so that children or ignorant persons may not have an opportunity of tasting so deleterious a liquor.

SPITTING OF BLOOD, or *Hæmoptysis*. This disease, like its kindred affection vomiting of blood, is usually divided into two species, the idiopathic and the symptomatic. It is attended with a sense of uneasiness or pain, or sometimes heat in the chest, with redness and flushing of the cheeks; irritation in the fauces, usually just at the top of larynx; difficulty of breathing; a cough or hacking, sometimes called a hacking cough, with the ejection or spitting of florid, sometimes of frothy blood; the saliva has

usually a saltish taste, and likewise the red frothy expectoration. This disease is to be distinguished from *vomiting of blood*, or *hæmatemesis*, as in the latter the blood is usually thrown up in considerable quantities, and is moreover of a darker colour, more grumous, and mixed with the contents of the stomach, and is unattended by any cough, &c. There are cases which occasionally occur of spitting of blood, where there is neither pain or oppression at chest, difficulty of breathing, or even cough, hicking or mild, and the disease is often accidentally discovered by the patient spitting in a white handkerchief, and observing the bloody frothy discharge. The pre-disposing causes of this disease are a hereditary disposition, a scrofulous, irritable, and what has been called a sanguine irritable temperament, or plethoric habit of body; the most pre-disposing age being from sixteen to thirty-five. A narrow chest, too, and an obstructed state of one or more of the viscera, a suppression of an accustomed evacuation, or obstructed perspiration, are all enumerated among the pre-disposing causes. Sedentary occupations, such as bending over the writing desk, and particular trades, such as those of the weaver, the shoemaker, the straw hat and bonnet maker, &c. Violent exercise of the body or lungs, speaking long and loud in the open air, over-heated apartments, the impure air of crowded places, and even walking against the wind, are some of the exciting causes. In fine, atmospherical vicissitudes, such as we have described in the air, will perhaps be found of all others most fruitful of all the exciting causes of hæmoptysis.

When spitting of blood has not been preceded or accompanied by any symptoms of pulmonary disease, and where it leaves no cough, shortness of breath, or any other affection of the lungs, it is not usually attended with danger. Nor is it dangerous in a strong healthy person of an otherwise strong constitution, unless it go to great extent. Where there is, however, a scrofulous habit, a narrow chest, a phthisical state or tendency in the lungs, and hepatic or other organic disease, the prognosis is always less favourable.

Treatment. When the hemorrhage is very considerable, with a hard and jerky pulse as it is called, and the patient stout, about twelve ounces of blood may be taken from the arm, and the bowels well opened by taking a gill of the mixture with infusion of roses and Epsom salts every three hours, according to the form prescribed in the article on *Nose, Bleeding from the.* Two of the following pills may be likewise taken every night at bed time:

Extract of henbane, one dram.
Powder of foxglove,
——— Opium, each nine grains.

Form into a mass, and divide into eighteen equal pills. These pills are not, however, to be prescribed till the mixture has operated freely, and when it has done so it may be discontinued, only taking a dose night or morning if the bowels are not free and regular.

The infusion of bramble leaves or roots, acidified with elixir of vitrol, and sweetened, may be drank as common drink, or the infusion of red roses made in the same way as the mixture above named, with the addition of two ounces of sugar to the quart of the acidified infusion. A large sinapism, the size of our page, may be applied alternately to the chest and back of the neck, being at one time placed along the spine, and the next application across it so as to shift the position; it may likewise be applied in reference to the breast or chest in the same manner. This system of counter-irritation often affords considerable relief; and in conjunction with the internal means above recommended, and sponging the skin with two parts of pyroligneous acid, or wood vinegar, and one part of rose or common water, we have seen it succeed, when persevered in, in some very obstinate cases. The bottle containing the wood, vinegar, and water, is to be dipped in warm water, so as to take off the chill, and render it of a blood heat. The sponging should be very quickly conducted, and the skin patted dry, not rubbed, by a soft towel.

A thin cotton shirt should be worn next the skin, and a fine fleecy flannel one of the same size immediately above it; the same rule should be applied in the case of drawers. As a diet drink, the artificial ass milk, in every pint of which should be dissolved ten grains of nitre, may be drank at pleasure, or the barley water with gum Arabic may be taken in the same way. The diet should consist of vegetable jellies, and in severe cases there is not, perhaps, a better article of diet than sowans, or well boiled oatmeal gruel acidulated with lemon juice. Sago, arrow root, and Carragaheen moss are to be preferred, avoiding all stimulating food of every description. We have declined entering on the prescription of a greater number of remedies, the most active of which now in use is the acetate or sugar of lead, which is given in doses of one grain, in the form of pill, in conjunction with half a grain of opium three times a-day, as we consider this disease requires to be treated by an experienced physician, unless it speedily yields to the remedies we have prescribed. It should not be concealed that the sequel of hæmoptysis is often consumption, and when obstinate is not to be trifled with.

SPLEEN. This organ adheres to the omentum, diaphragm, pancreas, and colon, and is a spongy, somewhat oblong, viscus of a blueish red colour, situated in the left hypochondrium, near the fundus of the stomach, under the ribs, and is furnished with absorbents, arteries, veins,

and nerves. Many theories and speculations have been published respecting the functions and uses of the spleen, but nothing satisfactory is yet known on the subject. Certain, however, we are, that it is not without its uses, else our wise Creator had not placed it where it is. The situation of the spleen is marked by the reference figures 13 in both the cuts of the abdomen under that head. See *Abdomen.*

SPLINT. A long piece of wood, tin, or strong pasteboard, employed in those cases where it is necessary to prevent motion of a limb, as in cases of fractures, in certain stages of disease of the joints, and in some cases of dislocation. The splint requires to be fitted for each particular case, and should always be sufficiently long to reach beyond the joints between which the broken bones are placed. Thus, in fracture of the bones of the leg, the splint requires to reach from above the knee joint, to some inches beyond the ankle, so to prevent motion either at the knee or ankle-joint. Splints require to be padded with a cushion of some soft material, so as to obviate undue pressure, and this padding requires to be thicker opposite any projecting point; as for example, the larger extremities of the bones at the articulations. The splint so padded is then applied to the limb, previously laid in a proper position, and then retained by methodical bandaging. See *Fractures.*

SPONGE, or *Spongia Officinalis.* Sponge, a well known substance in domestic life, is of a pale brownish yellow colour, soft, light, very porous and compressible, absorbing by capillary attraction a large proportion of water or any fluid in which it is immersed or even touches. It is a most useful article, not only in domestic life, but likewise in medicine and surgery; externally for absorbing the acrid discharge from ulcers, it is useful in suppressing hemorrhages or bleedings when applied by compression, by accelerating the coagulation of blood at the mouths of the vessels. It is also sometimes used to form tents for dilating wounds, in which case the sponge is immersed in melted wax, and cooled before being used, and sometimes immersed in the compound wax plaster and pressed between two iron plates, and as soon as cold, the substance thus formed may be cut into pieces of any shape. Thus prepared, it receives the name of the sponge tent or prepared sponge. It was formerly, and by some practitioners still is employed for dilating small openings, for which it was well adapted, as when the wax melted, the elasticity of the sponge made it expand and distend the opening in which it had been put, but modern surgeons seldom employ it. We have, however, seen great good effected in some cases of stricture of the rectum by the introduction of sponge thus prepared, and it is an excellent mode of applying any ointment to the internal coats of the rectum. The sponge saturated with the medicine, and such a portion of wax or other plaster as may be necessary, a medicated bougie may thus be formed, from which the greatest benefit may in many cases be derived. It would occupy too much of our space, even to enumerate one half of the external purposes to which this useful article may be applied.

Sponge has been employed in medicine internally, and for this purpose it was burned and powdered, and indeed burnt sponge, or the *Spongia usta*, yet holds a place in the pharmacopeias. The sponge is cut into pieces, burnt to a friable coal in a covered vessel, and rubbed to a powder. This powder was once, and at no remote period, conceived to consist of nothing more than a mixture of charcoal, with a little muriate of soda and phosphate of lime; but later chemical investigation has proved that it consists of carbonate and phosphate of lime, carbonate of soda and iodine. The powdered burnt sponge is employed, in doses of from one dram to three, made into an electuary, with honey and aromatic powder in bronchocele scrofulous complaints, herpetic eruptions, glandular swellings, &c., and is antacid, deobstruent, and tonic. Its use, however, is almost superseded by that of iodine; but we confess, that in domestic medicine, the burnt sponge is the safer application, as iodine, unless in skilful hands, is a very dangerous medicine. The burnt and fresh seatangle poultices, or the burnt and fresh bladder sea-wreck, are yet safer remedies, and ought not to be abandoned, because iodine has been discovered to be the principle on which their curative effects depend.

SPONTANEOUS COMBUSTION OF THE HUMAN BODY. That the human body has been in many instances spontaneously consumed, or partially consumed by combustion, no one who has read with ordinary attention the history of facts illustrative of that astonishing phenomenon, will attempt to deny. True, indeed, many of the cases first submitted to the public were of a questionable nature, and related by those scarcely competent to form a correct judgment on the subject, but year after year there have been facts recorded by scientific and intelligent writers, which places the evidence of the case beyond a doubt. One of the medical witnesses before the committee of the House of Commons on the subject of intemperance, was asked; 'Do you conceive spontaneous combustion possible?' He answered, 'Quite possible.' 'Would it not be prevented by the existence of moisture there is in the body?' 'The moisture would rather tend to favour the combination of the elements which are concerned in producing this horrible effect of intemperance.' What condition of the system tends to such a fatal issue, or how the various fluids

and solids of the human body acquire a chemical constitution fitted for such a phenomenon, it is difficult to explain, but it is well known that alcohol contains in itself all the elements of olefiant gas, with oxygen and hydrogen in excess, and by persisting in the habitual use of alcohol, it is not improbable that after a while its elements might assume that combination which would give rise to such a catastrophe? 'Most of our readers,' say the talented editors of the *Medico-Chirurgical Review*, 'are probably aware that the recorded cases of spontaneous combustion of human beings have been considered by many intelligent men to be apocryphal; and in truth we cannot be much surprised at this opinion, when we reflect upon the extreme difficulty of burning to ashes recently dead animal matter. But such incredulity in the present day, can be founded only on ignorance. The examples which have occurred of late years, are too well authenticated to warrant the smallest doubt of the perfect accuracy of the descriptions given.

M. M. Dupuytren and Marc have declared the history of two cases which they themselves had an opportunity of examining, and others have recently occurred, which we shall detail in the sequel. There cannot, therefore, be any rational doubts as to the truth of the fact that human bodies have in some manner caught fire, and have partially, or almost completely consumed away, leaving no remains but a mass of macerated grease. All the subjects of this horrid death have been notorious drunkards, and it is worthy of notice that most of them have been old corpulent women addicted to intoxication; for of twenty-five cases collected by J. Kopp of Lair, twenty-four have occurred in females. In no case has the entire body been destroyed. Some portion or portions have remained only scorched, while the rest has been reduced to a heap of ashes, mixed with a black unctuous mass. The parts which are usually not consumed are the extremities, especially the hands and feet, and portions of the spine and of the cranium. It is rare that the furniture of the room, even that in contact with the body, is much damaged. Sometimes, indeed, the bed, chair, &c., near the body is scorched, but it is seldom or never consumed. In general the clothes, however, are found destroyed. A thick, greasy, and offensive soot usually covers all the objects around the corpse. In a few cases, the animal body has been found in the very act of combustion. A flickering blue-coloured flame has been seen to be emitted from it, and we are assured by some writers, that water sprinkled upon the flame seemed to enliven rather than to extinguish it. In the majority of cases on record, the unhappy victim has been seated near to a flame or fire when the combustion had commenced. It seems, therefore probable, that the ignition, so to speak, has not taken place spontaneously, but had been caused by the approach of the person to the fire or candle.

M. M. Cat, Kopp, and Marc, however, are of opinion, from the history of certain cases, that the ignition may commence primarily in the animal body itself, without the application or approach of any heat or burning body. It is well known that many dry vegetable matters, and that some minerals also, will of themselves, under certain circumstances, become heated and catch fire. Some chemical mixtures too, we are aware, will occasion an immediate ignition. Thus, when the sulphuric and nitric acids together, are added to some essential oils, the whole becomes instantaneously ignited. It is upon these and similar facts, that the writers last named rest in part their belief, that animal bodies may spontaneously ignite.

The development of the electrical spark on the one hand, and on the other hand, the imbibition of all tissues of the body with spirituous liquid, especially, when at the same time there is a quantity of fatty matter in the cellular substance, are the circumstances which some physicians have considered to be sufficient to occasion and keep up combustion of the human frame.

That alcoholic liquors may be very quickly absorbed into the blood, and thus be diffused through every part of the body, is known to all experienced pathologists. For example, a man took a wager that he would drink an enormous quantity of wine and brandy within a certain time: he did the feat, but killed himself by it. M. M. Cuvier and Dumeral examined the body; they were struck with the strong alcoholic exhalations from every part. Again, M. Breschet mentions, that he has repeatedly observed the same phenomena in the bodies of criminals who have been executed; and he adds this important remark, that fat animal substances are always found to burn away much more quickly and completely than those which are lean. M. Marc concludes, from numerous observations, that an animal body may engender and become impregnated with inflammable gaseous matter, and that this may ignite either on the approach of any lighted body, or by the action of an internal electrical current.

A case recently occurred in the Hotel Dieu, which may be adduced as affording some degree of probability to M. Marc's opinions. A man died suddenly in the hospital; the body was not examined for eight days after death; it was much decayed and putrid. The whole of the surface was ephysematous, and covered with vesicles, some contained a bloody fluid, others filled with gas. The cavities of the abdomen, thorax, and also the ventricles of the brain, when cut into, emitted a quantity of gas, which, on the approach

of a lighted candle caught fire, and burned with a blueish flame. The gaseous matter is, in all probability, carburretted hydrogen. It is not improbable, that the still more inflammable gas, the phosphuretted hydrogen, may be generated in the animal system. We know that this gas ignites with simple atmospheric air.

In whatever way we endeavour to explain the occurrence of spontaneous combustion, there are one or two circumstances which strongly distinguish it from ordinary combustion. Thus, the rapidity with which the decomposition and destruction of the body occurs, is very remarkable; a few hours are sufficient for this purpose. Again, how are we to account for the flame which has been described as seen issuing from the body, not being communicated to inflammable substances placed in its vicinity.

In illustration of many of the preceding remarks, and with a view of placing this interesting subject more completely before the reader, we shall give the particulars of one of the cases narrated by Dr Apjohn, and likewise that of Mr Devanard of London, and the more especially, as most of the cases previously published have occurred on the continent, especially in France.

A woman of about sixty years of age, who lived with her brother in the county of Down, retired one evening to bed with her daughter, both being, as was their constant habit, in a state of intoxication. A little before day, some members of the family were awakened by an extremely offensive smoke, which pervaded their apartment, and on going into the chamber where the old woman and her daughter slept, they found the smoke to proceed from the body of the former, which appeared to be burning with an internal fire. It was as black as coal, and the smoke issued from every part of it. The combustion having been arrested, which was effected with difficulty, although there was no flame, life was found completely extinct. While the body was being removed into the coffin, which was done as soon as possible, it was dropping in pieces. Her daughter, who slept in the same bed, sustained no injury, nor did the combustion extend to the bed or bed-clothes, which exhibited no other traces of fire than the stains produced by the smoke. According to the testimony of one of the relatives, there was no fire whatever in the room. The subject of this case, adds Dr Apjohn, had been grossly intemperate.

The following is the case published by Mr Devanard, in the first volume of the London Medical and Surgical Journal:

'Thomas Wallace, a sailor, aged thirty-eight, who had for a long time used himself to drink a quantity of spirits, especially rum, was in a smuggling vessel in the month of November, 1808, which landed at Amberforth in Wales, having several barrels of rum on board, which they managed to get on shore without discovery, and took them to an old house in the village, which they had previously taken for the purpose; when all was right, they began, as they termed it, to enjoy themselves, and to partake plenteously of their bounty. This man, who had been noted for the quantity he could take, (for according to his companions, his usual quantum was two quarts of spirits daily,) now took considerably more than he had been accustomed to. He became exceedingly intoxicated, and lay in this state for such a length of time, that his companions became alarmed, and sent for a surgeon from Cardigan; but he being from home himself, I and another apprentice attended for him. On our arrival, we found him in the state described. After ascertaining the beverage he had been taking, the best antidote we could think off was oil; this we agreed to administer, I officiating, whilst the other held the candle, it being late in the evening. As soon as the candle came in contact with the vapour arising from his body, to our great surprise it caught light, commencing about the face, and extending throughout the whole surface of the body, burning with a blue flame. We being greatly agitated, thinking that we had set him on fire, thought it best to depart, first having thrown a pail of water over him to extinguish it. This only added fuel to the fire, it burning with greater severity. On our return, we related to our master the circumstance, who at first could scarcely credit it. The next morning, he and myself went to see this unfortunate victim. Upon our arrival, we found only part of the being we went to see, for all the parts, except the head, legs, and part of the arms, were consumed. The ashes which remained were black and greasy, and the room in which it lay had a peculiar offensive smell. His shirt, which was of flannel, was not burned, but charred; we ordered the remaining parts to be put in a shell. Two days afterwards, from curiosity, we again went to see if the remainder was burned, but found it as before. There was no inquest, his companions, as well as those people who had heard of it, being at that time very superstitious, and knowing him to be a very wicked man, reported that the devil had come and set him alight, and sent him alive to the shades below for his wickedness.'

Perhaps superstition never pronounced a more just opinion than on this occasion; that liquid devil alcohol certainly set the poor smuggler in a blaze, and placed his mutilated remains in a shell. We could multiply facts to prove the occurrence of this astonishing phenomena, and as certainly to prove it, the sequel of a life of alcoholic intemperance; true, indeed, it is but the fate of comparatively a few, but it has

of late been on the increase, seeing no authenticated cases of its occurrence in the United Kingdom had been published till that by Dr Apjohn, and since no less than four have occurred in Ireland, and now we have another in Wales. We are not aware of the melancholy event happening in Scotland or England, although we know there is a long paper on the subject in the Philosophical Transactions for 1745. See *Delirium Tremens*, &c., which, in connection with the preceding, are worth a volume of speculations and hypotheses on the baleful effects of alcoholic intemperance.

SPRAIN. By sprain is understood subluxation, or partial displacement, or twisting of a joint with stretching, and more or less injury to the articulating apparatus, the ligaments, tendons, and their sheaths, being all involved in the injury, and sometimes even small portions of the articulating processes of bones are separated. All joints are liable to this accident; the elbow and shoulder are frequently sprained, but perhaps the wrist and ankle joints are those most liable to this form of injury. It is generally occasioned by a fall, the hand or foot being at the time awkwardly placed, and in some cases it is occasioned by lifting heavy weights, or by the part getting suddenly entangled whilst the body is in rapid motion. The ankle is often sprained by what is called a false step; the foot is twisted under the limb, and the weight of the body is thus thrown on the apparatus of one side of the joint, and this of course is unnaturally stretched, violent pain immediately occurs, and the patient feels sick and faint. Swelling and discoloration rapidly take place from extravasation of blood into the sheaths of the tendons, and the other surrounding tissues, in consequence of laceration of the smaller blood vessels. Subsequently the swelling is kept up in consequence of effusion of serum from the incited action which occurs. Thus the joint is much deformed, and great care is required in examining the parts to guard against mistakes, and to gain an exact knowledge of the nature of the injury to ascertain decidedly, and at once, whether it be a simple sprain, or whether there be fracture or dislocation. If the injury be a simple sprain, the part should be laid in an easy position, on a pillow, and confined in that position by broad slips of bandage crossing the limb, and pinned at each end to the sides of the pillow. The part should at first be fomented with cloths wrung out of warm water for an hour or two, and afterwards the part is to be enveloped in cloths wetted with the following lotion used warm:

Take of Sugar of lead, one dram.
——— Opium, one dram.

Rub these together intimately, then add boiling water one quart.

The cloths, when applied, should be covered with oiled silk or cotton, to prevent evaporation. Absolute rest is the principal point to be attended to. To secure this, where there is much restlessness, it sometimes becomes necessary to use splints. Many diseases of joints are brought on by mismanaged sprains, and in some constitutions these diseases will sometimes follow in spite even of the most judicious treatment. Leeching, or even general bleeding, may become necessary should inflammatory symptoms appear, but leeching in the first instance, with a view to remove the bruised blood, as it is termed, is absurd; the blood is effused into the surrounding cellular, and cannot be removed by these means, but must be acted on by the absorbents. Punctures, and incisions which used sometimes to be practised for a similar purpose, have not unfrequently been followed by extensive suppuration and destruction of the joint. If the part be kept at rest from the first, and fomented as directed, the pain soon abates, and swelling and discoloration gradually disappear; then gentle friction, with soap and opium liniment, may be had recourse to with advantage, and the part should be lightly bandaged with a flannel roller. If, however, pain, redness, and heat; in other words, if inflammation sets in, then blood must be freely abstracted by means of leeching, or cupping, and antimonials, laxatives, and other antiphlogistic remedies, actively employed. The joint often remains weak and stiff for a length of time, then stimulating frictions will be found useful, together with the practice of pouring water on the part from a height; in doing this it is well to commence with warm water, and after a time gradually to reduce the temperature till the patient can bear it cold from the well; after each application the part must be well rubbed, as otherwise the part may become rheumatic; indeed rheumatism is a very frequent occurrence in parts injured by sprains and fractures. We cannot conclude this article without quoting the opinion of Mr Liston in regard to these accidents, to put our readers on guard against bad advice: 'Perhaps no injury is more frequently mismanaged by those both in and out of the profession. Every old woman thinks she can manage a sprain; most absurd and hurtful measures are resorted to; the injured parts are kept in motion; cold lotions and cold affusions are employed, and at the same time stimulating frictions; probably attempts are made either by leeching, or by puncturing, to extract the effused blood; and many similar follies are committed. The proper treatment certainly appears to consist principally in absolute rest.'

SPRUCE. From the particular well known species of fir called spruce fir, a juice, or what is called the essence of spruce, is prepared, and when fermented and formed into spruce beer is not an unpleasant drink, and an excellent antiscorbutic. The tops, or young sprouts, or buds at the extremities of the branches collected in

the spring, and infused in new table beer, or what in Scotland is called small beer, with the addition of a small portion of molasses, forms an excellent antiscorbutic drink. Spruce beer, however, seems of late to be superseded by ginger beer and aerated water; the following formula will, however, be found a most efficacious alterative ale in doses of half a pint, or even more three times a day:

French tops and young cones of the spruce fir, one pound.
——— Berries of juniper, four ounces.
——— Savine,
Sweet fennel and coriander seed, each one ounce.
New small table beer in which has been dissolved half a pound of treacle, eighteen imperial quarts.

Macerate for three days and bottle for use. The treacle should be dissolved in about two quarts of the ale warmed, and while it is of a blood heat, added to the new beer yet in a state of fermentation. The simple domestic preparation is a refreshing drink, a powerful diuretic, and produces most beneficial results in many obstinate cutaneous affections. In chronic rheumatism it may be taken with advantage in doses of half a pint at bedtime, warmed and sweetened to the taste. In cases of amenorrhea a better diet drink can scarcely be procured, although pregnant females, or those having any tendency to a profuse menstrual discharge, should avoid using it. We have known it, however, afford very considerable relief in cases of scanty and difficult menstruation, taken warm at bedtime one or two nights before the expected appearance, and likewise during its continuance. If there is great pain attending the discharge, thirty drops of each of the tinctures of opium, henbane, and one dram of the tincture of black hellebore, may be mixed with the warmed and sweetened spruce beer.

SQUILL, or *Scilla Maritima*. The squill, or sea onion, is one of the most ancient and useful articles of the materia medica. Its root, which is the part used in medicine, resembles an ordinary onion, and is large and lamellated, having the same structure as the common garden onion. It has a nauseous bitter taste, is inodorous, and when fresh or recently gathered, extremely acrid, and inflaming the skin when rubbed on it. This bulb or root, which was well known in the early ages of Greece, has maintained its character ever since, and is frequently used both by the faculty and in domestic medicine at the present time, although it seems to manifest a poisonous quality to several animals. Its acrimony, on which its virtue depends, is destroyed by heat, drying, and too long keeping, and it gives out its virtues to spirit, water, and vinegar. In large doses it acts as an irritant, inducing nausea and vomiting, and it has been sometimes employed as an emetic. In smaller doses it is diuretic, and stimulates the mucous membrane of the bronchi, or the windpipe. Squills in substance, and their various preparations, are principally used as diuretics and expectorants in asthmatic and pulmonary complaints after the inflammatory action is reduced, and in hooping cough, and the various species of dropsy. Late analyses have shown that it owes its properties to a peculiar principle which has been denominated *scillitin*, which is a white, brittle, and transparent substance, without smell, and of a bitter taste. It is deliquescent and very soluble, and excites vomiting and diarrhea, and acts diuretically like squills. As this principle (scillitin) soon looses its property by keeping, it is not much used in medicine.

To dry the bulb it should be cut transversely, and the dried sections kept in an opaque bottle. The dried powdered root or bulb is given in doses of one to five grains, alone or in combination with other medicines. The colleges have likewise ordered the following preparations of the squill.

The Compound Squill Pill.

Powder of dried squill,
——— Ginger,
Castile or Spanish soap, each three drams.
Gum amoniacum in powder, two drams.

Form or beat into a uniform mass; a little syrup may be added if required. This mass may be divided into ordinary sized pills. The dose of these pills is two or three night and morning. There is some little difference in the forms given by the Dublin and Edinburgh colleges, but it is not essential.

Vinegar of Squill.

The dried recent root cut in slices, one ounce.
Vinegar, fifteen ounces.
Strong spirit, an ounce and a half.

Macerate the squills with the vinegar in a covered glass, stone, or china vessel, on a gentle heat for twenty-four hours, then express and strain the liquor through a linen cloth, and set it aside until the fæces subside or fall to the bottom, then decant off the clear liquor, and add the spirit.

This is a most valuable preparation of the squill, and is administered in cinnamon or mint water in cases of dropsy, asthma, and chronic cough, and catarrh, &c., in doses of from half a dram to two drams.

The Oxymel of Squill.

Vinegar of squills, one pint.
Pure or clarified honey, one pound.

Boil in a glass, stone, or china pot over a gentle fire to a proper consistence. For the mode of preparation, see *Honey*.

Syrup of Squills.

Vinegar of squills, four ounces.
Refined sugar, seven ounces.

Dissolve the sugar with a gentle heat after the same manner as the preceding, (without boiling however), so as to form a syrup.

These two last preparations are chiefly used to promote expectoration in coughs, &c., and are used for children in hooping cough, and sometimes as gentle emetics. They likewise

enter into the composition of expectorant cough mixtures.

Tincture of Squill.

The recent dried root in small slices, two ounces.
Proof spirit, one pint.

Digest for seven days, and then strain through a cloth with expression, and when the fæces have subsided decant off the clear tincture. This tincture is employed for the same purposes as the other preparations of squill, in doses of from ten drops to one dram. It enters into the composition of mucilaginous cough mixtures, and is very efficacious combined with the almond emulsion. Some prefer it to the vinegar of squills for forming a syrup by mixing ten or twenty drops of the tincture with an ounce of simple syrup. Squills, however, are most efficacious in dropsical affections when combined in the form of pill with either calomel, or the mercurial pill, (blue pill).

SQUINTING, or *Strabismus*. Where the two eyes do not move in harmony together; where they are not directed, as they should be, to the same object, the person is said to squint, one eye being directed towards the object which the individual is contemplating, while the other diverges from it, and either looks outwards or inwards, and hence *strabismus*, or the diverging or converging squint. This sometimes occurs at the commencement of amaurosis, where the one eye being affected, and the other being in its sound state, the difference of power in the two eyes produces a want of harmony in their motion, hence strabismus and double vision. (See *Amaurosis*.) It not uncommonly precedes disease of a serious kind, of the head, apoplectic, and other affections. There are other instances in which squinting arises, particularly in young subjects, without any known cause. It may arise, and frequently does so, from imitation, particularly in young children, and therefore, there is a general dislike to choose a person who squints for a nurse. It is said that squinting may be produced by the state of the stomach or alimentary canal; this of course will be evidenced by particular symptoms, viz., those of indigestion, &c., and if these exist, they may be removed by a proper course of alterative medicines, such as a four-grain mercurial pill every second night, and a full dose of seidlitz powder the following morning, taking a dose of the compound powder of columba in a wine glass of cold water an hour before dinner for some time. In some cases, particularly in young persons, where it is difficult to ascertain the cause of the affection, great difficulty is consequently experienced in finding a remedy for it. There are some cases in which squinting may be remedied by means directed to this disturbance, but we candidly confess with Mr Lawrence, in his inestimable lectures on diseases of the eye, 'that there are other instances, where, after employing means to act on the stomach and bowels, the squinting still continues.' Under such circumstances, it has been recommended to tie up the sound eye, and compel the individual affected to employ the squinting eye only; for although the squinting eye is turned away from the object at which the person looks when both eyes are open, yet if the person shuts the sound eye then the other is directed straightforward, the patient being compelled to use it. The sound eye may be tied up in a child for a quarter or half an hour two or three times in the course of the day. Mr Lawrence says, 'I have seen instances in which this mode of proceeding has removed the squint; and I have also seen others in which it has been employed without effect;' and he very candidly adds, 'in fact there are cases in which the cause cannot be detected, and where, consequently, we are really at a loss to suggest any remedy whatever.'

When squinting suddenly or unexpectedly takes place, as the precursor of amaurosis or apoplexy, the treatment employed is to remove these diseases, of which squinting is only one of the symptoms, which will in general cure the squinting at the same time. (See *Apoplexy*, &c.) Squinting appears occasionally at, or soon after birth, and when this is the case, great care should be taken not to expose the infant to a strong or unequal degree of light, and likewise should never be spoken to, unless when looked in the face, as the speaking at the one ear will unequally affect the organ of vision as well as of hearing, and consequently strengthen the habit. In fine, we are convinced that more children acquire a habit of gleeing and squinting by the imitation of nurses and attendants, than is generally believed.

Within the last two or three years, an operation has been invented for the remedy of this deformity, and has of late been performed in an immense number of cases both on the continent and this country; and although it has not proved so uniformly successful as was at first stated, still it has been so, in the great majority of cases, and we believe in nearly all it has been attended with a great improvement in appearance; and in many cases where from disuse, the vision of the affected eye had in a great measure been lost, great improvement in that particular has taken place after the operation, the retina gradually becoming accustomed to the stimulus of light and external objects, when the pupil has been brought into the axis of vision. The operation is simple, and consists in dividing the muscle which draws the eye-ball inwards; if it be the convergent, which is the most common kind of squint, or the opposite muscle if the squint be outwards. The operation, if dexterously performed, is comparatively trifling, and if ordinary care be taken

bad effects rarely if ever follow. So much, however, has been published on this subject lately, that most of our readers, we doubt not, will already be fully aware of all the details concerning this new remedy.

STAVESACRE, or *Delphinium Staphisagra.* The seeds are the part of this plant employed in medicine, they are imported from Italy, of which country the stavesacre is a native. The seeds have an irregular triangular figure, black externally, and white within, their smell is disagreeable and somewhat fœtid, and they have a very bitter, acrid, and nauseous taste. They possess cathartic, emetic, and vermifuge properties, but owing to the violence of their operations are seldom employed externally. When other remedies cannot be procured, the powder of the seeds may be taken in doses of from three to ten grains as a purgative and anthelmentic. The powder mixed in the proportion of two or three drams with an ounce of lard, is employed in cases of what has been called the lousy disease of the aged, as it destroys the pediculi. Some lazy and filthy persons dust the blankets with the powder for the same purpose, and, indeed, it is occasionally useful when other remedies fail, even where cleanliness is observed. Moreover, when the filthy practice of wearing hair-powder was in fashion, a certain portion of stavesacre powder was mixed with the hair-powder for a similar purpose, and hence its vulgar name *Louse-wort.* A new principle has been discovered in this plant, which is called *Delphinium;* it is white and inodorous, bitter and acrid. It is a virulent poison, and has not been used in medicine.

STABS. Wounds inflicted with a sharp pointed weapon, as a sword, bayonet, or pike. See *Wounds.*

STAPHYLOMA. A disease of the eye-ball, in which the cornea loses its natural transparency, rises above the level of the eye, and eventually projects between the eyelids in the form of an elongated, whitish, or pearl coloured tumour; which is sometimes smooth, at others covered with granulations, and is attended with total loss of vision. This disease may arise from long continued opthalmia, from the effects of small pox, or from external violence. When the cornea does not protrude between the eyelids no treatment is requisite, but when it does, the part so deprived of its natural covering is exposed to constant irritation; and, in such cases, it becomes necessary to remove a portion of the protruding part by a surgical operation, to permit the humours of the eye to escape, so that the eyelids may cover the parts within the orbit.

STARCH is a white, insipid, vegetable substance, insoluble in cold water, but forming a jelly with boiling water. It exists chiefly in the white and brittle parts of vegetables, particularly in tube-rose roots, and the seeds of gramineous plants. It may be extracted by pounding these parts and agitating them in cold water, when the fibrous parts will first subside, after which the starch will gradually precipitate itself in a fine white powder; or the pounded or grated substance (as the roots of arum, potatoes, acorns, or horse-chestnuts, for instance) may be put into a hair-sieve, and the starch washed through with cold water, leaving the grosser matters behind. Farinaceous seeds may be ground and treated in a similar manner. Only seeds require to have the oil expressed from them before the farina is extracted. In starch-making, the farina ferments and becomes sour; but the starch that does not undergo fermentation is rendered more pure by this process. Some water, already soured, is mixed with the flour and water, which regulates the fermentation, and prevents the mixture from becoming putrid; and in this state it is left about ten days in summer, and fifteen in winter, before the scum is removed and the water poured off. The starch is then washed out from the bran, and dried, first in the open air, and finally in an oven. When starch is triturated with iodine, it forms combinations of various colours. When the proportions of iodine are small, these compounds are violet; when somewhat greater, blue; and when still greater, black. We can always obtain the finest blue colour by treating starch with an excess of iodine, dissolving the compound in liquid potash, and precipitating by a vegetable acid. The colour is manifested even at the instant of pouring water of iodine into a liquid which contains starch diffused through it. Hence iodine becomes an excellent test for detecting starch, and starch for detecting iodine. Starch is convertible into sugar by dilute sulphuric acid. To produce this change, we must take 2000 parts of starch, diffuse them in 8000 parts of water, containing forty parts of strong sulphuric acid, and boil the mixture for thirty-six hours in a basin of silver or lead, taking care to stir the materials with a wooden rod, during the first hour of ebullition. At the end of this time, the mass, having become liquid, does not require to be stirred, except at intervals. In proportion as the water evaporates, it ought to be replaced. When the liquor has been sufficiently boiled, chalk and animal charcoal are added, and it is clarified with white of egg. The whole is then filtered through a flock of wool, and the clear liquid is concentrated, till it has acquired a sirupy consistence. After this, the basin is removed from the fire, in order, that, by cooling, its sulphate of lime may be precipitated. The pure sirup is now decanted, and evaporated to the proper dryness. It is found, also, that sugar may be obtained from starch without the use of sulphuric acid. It is obtained by leaving the starch, first brought to the pulpy state, to itself, either with or without the con-

tact of the air, or by mixing it with dried gluten. At the same time, however, other products are obtained; viz. 1st, a gum like that from roasted starch; 2d, amydine a body whose properties are intermediate between those of starch and gum; and 3d, an insoluble substance, like ligneous matter. Twelve parts of boiling water and one of starch, fermented by dry gluten, yielded,

	Without contact of a r.	With contact of air.
Sugar	47·4	49·7
Gum	23·0	9·7
Amydine	8·9	5·2
Amylaceous lignin	10·3	9·2
Lignin with charcoal	a trace	0·3
Undecomposed starch	4·0	3·8

Potatoe starch differs considerably from that of wheat. It is more friable, is composed of much larger sized grains, forms a jelly with water at a lower temperature, and is less readily decomposed by spontaneous fermentation. Starch is composed of carbon 43·48, oxygen 49·45, hydrogen 7·06. Dr Prout considers starch as sugar partly organized; for it has the same essential composition, but differs in containing minute portions of other matter, which, we may presume, prevent its constituent particles from arranging themselves in the crystalline form, and thus cause it to assume totally different sensible properties. When starch is roasted at a moderate heat in an oven, it is converted into a species of gum, employed by calico printers; potatoe starch answers best for this purpose. *Salop* is composed of a little gum, very little starch, and much of a kind of gum called *Bassorine*. *Sago* is an uniform substance, soluble in cold water, more so in hot, precipitated blue by iodine, and differing from common starch only in the first mentioned property. *Tapioca* seems to be identical with sago. *Arrow root* is nearly pure starch, agreeing in all respects with the starch of potato, which may be converted by heat into something similar to sago and tapioca.

STEEL MEDICINES. These preparations have already been spoken of when treating of iron and its preparations. The preparations of steel are used as tonics and vermifuges, but their use is contra-indicated by any tendency to plethora, or inflammation. See *Iron*.

STERNUM, OR BREAST BONE, is placed in the mesial line, on the fore part of the chest. In the child it is composed of several pieces, but in the adult only two remain distinct. Its inferior extremity is thin and elongated, and gives attachment to a cartilaginous appendix called the ensiform cartilage, which affords attachments to some of the abdominal muscles; the sternum is articulated at its upper end with the clavicle or collar bone of each side, and laterally with the true ribs by means of their cartilages.

STERTOR. A noisy kind of breathing or snoring, which is observed in apoplexy and cases of compression of the brain.

STETHOSCOPE. A narrow cylinder of wood, used for the purpose of conveying sounds to the ear. For example, in diseases of the chest, by placing the one end of the stethoscope on the chest, and applying the ear to the other end the sounds within the chest can be distinctly heard. In like manner, by applying the stethoscope over the region of the womb during pregnancy, the movements of the child, and the action of the fœtal heart, can be distinguished. The use of the stethoscope is, undoubtedly, one of the most valuable additions to modern practice of medicine, as assisting the physician to form a correct diagnosis.

STIMULANTS are all those medicinal substances, which, applied either externally or internally, have the property of accelerating the pulse and quickening the vital actions. They are among the most valuable and important of medicines, and perhaps are more often the direct means of saving life than any others. But as they are powerful, their injurious effects, when misapplied, have been even more prejudicial to mankind than their best use has been beneficial. In fact, it may be said, that the abuse of this one class of medicines, under the names of cardiacs, cordials, alexipharmics, &c., was the cause of more numerous deaths during the dark ages of medicine, than the sword and the pestilence united. The dreadful mortality of the small pox and of fevers during the middle ages, and even during the earlier parts of the last century, were mainly owing to the administration, by nurses and physicians, of strong cordials, and heating stimulants of all sorts, the tendency of all of which was to increase the violence of the disease, although they were intended merely to expel the noxious and poisonous humours from the system. But, happily for mankind, a more cautious use of these articles have been introduced, and they are now the constant means of preserving, when properly applied, the life which they formerly so quickly destroyed. Stimulants are either simple and direct in their operation, as the external application of heat in all forms, dry and moist, by friction, &c., the application to the stomach of hot liquors, spices, camphor, hartshorn, warm and aromatic gums and oils, as mint, cardamom, cajeput, ginger, assafœtida, red pepper, spirits of turpentine, &c.; or they act first as stimulants, but produce afterwards effects of a different character, as is the case with all which are termed *diffusible* stimulants, as wine, brandy and spirits of all sorts, opium, &c., all of which are highly stimulant at first, and in small quantity, but afterwards, and when taken in larger doses, produce exhaustion, debility, sleep and death. The first class are, upon the whole, the most safe, and should be always used, in preference to the last, when they can be had,

in all cases of suspended animation from cold, drowning, suffocation, &c.; while the others are more valuable for their secondary and remote effects, by means of which they ease pain, relieve spasm, &c.; and for these purposes they should be used freely, as they can do no hurt, while the violence of the disease subsists. But they should never be resorted to, unless pain is urgent or debility become so great as to endanger life.

STILL-BORN INFANTS. If a child does not breathe soon after it is born, it is not always easy to say whether it is alive, for at this period, we have no criterion of death except putrefaction; and therefore, unless this mark be present, we ought always to employ means for preserving the child, by which many have been saved after having been laid past as dead. Children may be born apparently dead in consequence of the head having remained too long in the pelvis, or having been squeezed in a deformed pelvis; or owing to the cord having been compressed, either during the process of turning and delivering a child, or from its having descended before the presenting part of the child, or being so placed during labour as to be compressed by the womb, particularly during tedious labour. Many children die in consequence of the head being born covered with the membrane some time before the body. This is caused by carelessness; for, if the membranes be removed from the face, there is no danger of the child. In whatever manner children are still-born, the effect may be assigned either to compression on the cord, first suspending and then destroying animation; or to pressure on the brain; or it may be attributed to a state of insensibility and feebleness, preventing the action of respiration from taking place after birth.

With regard to the *treatment* of still-born children, our first object ought to be, to ascertain if the circulation be still going on in the cord. If the pulsation have stopped, no good can arise from allowing the child to remain attached to the mother. The cord is to be immediately divided, and means adopted, as shall be mentioned hereafter, for the production of respiration. If pulsation continue, the infant is not in danger from want of respiration, for the fœtal mode of living is going on. A kind of syncope, then, is the most likely cause of stillness, which prevents the action of respiration from being established; or, it may arise from compression of the brain. The skin is purple in both cases, in consequence of the blood not being arterialized, and we have no mark of distinction until respiration commence. In the first case, it is very common for the child to be still for a minute; after which it makes a slight sob, and breathes low, with a sound resembling fluid in the throat; and then of a sudden respiration becomes perfect. In the second case, respiration, after it commences, continues longer oppressed, and in some cases suddenly stops, the child dying in a very short time. When the cord pulsates at the birth of the child, we ought never to be rash in dividing it. It is of great importance to keep up the fœtal circulation, until the sure manner of acting can be established; and we ought not to divide the cord, in such cases, till pulsation cease, because we have the placenta as an auxiliary if the respiration should flag; if the connection still exists, and the pulmonary action being suspended, the fœtal mode will continue and support life till respiration become vigorous; for the two modes of changing the blood are not incompatible. Pulsation will, no doubt, at length cease, either from the heart of the child stopping, or the after birth being detached from the womb, and its function being lost; but as long as pulsation continues, and the child does not breathe freely and regularly, no ligature should be applied. But if respiration do not begin, we ought to open with a lancet one of the umbilical arteries, from which blood issues in a small stream and, in a short time afterwards, breathing commences. If it should not, some method must be resorted to for exciting respiration, such as wrapping the child in warm flannel whilst it is still in bed; friction, particularly over the chest, with the hand, or strong spirits; applying spirits to the nostrils by means of a feather, or giving a slight concussion to the body by slaping the back. But inflating the lungs is the most effectual remedy, which is to be effected either by breathing through the barrel of a quill, or applying the mouth directly to the mouth of the child, at the same time that the nostrils are held, and the cartilages of the trachea pressed gently back with the view of obstructing the gullet. The attempt at inflation is to be alternated with pressure on the chest, for the purpose of forcing out the air again. If by this time the pulsation have ceased in the cord, and the child do not recover, the cord is to be divided, for connection with the after-birth is useless after the circulation stops. The cord is not to be tied, but only a loose ligature put round it; it is then to be divided, and the child placed near to the fire, or immersed in warm water, and artificial respiration diligently continued. An injection is also to be given, and if electricity could be employed, there is reason for thinking that it would be advantageous. If by these means the child should begin to breathe, a small quantity of blood will most likely issue from the cord, which will increase. If by this evacuation the breathing appear to be benefited, and the child seem more active, it is to be allowed to proceed to the extent of two or three tea spoonfuls; but if it do not speedily produce a good effect, it is to be stopped with

a ligature, that it may not injure the child by throwing it back into a state of inaction. Even when it is of advantage it must be kept within bounds, otherwise dangerous weakness will be the consequence. It will be principally useful when the breathing does commence, but is slow and oppressed, accompanied with stupor, denoting affection of the brain. Should the shape of the head be much altered, it has been recommended, whilst other means are employing, to attempt to press it into a more natural state, but of the good effect resulting from this we are unable to speak from experience. In footling cases, it has been imagined that extension of the spine was a cause of death, but this, we are of opinion, is seldom the case.

It is very often desirable for the physician to know whether a child has been born alive, and afterwards destroyed, but the signs are not without uncertainty. When, therefore, the life of the parent is at stake, we must be very careful in forming our opinion. If the lungs be solid, and sink when placed in water, the child has not breathed; and although respiration may, from the first, be prevented by the midwife, it cannot by the mother. If the head be much altered in shape, that is additional ground for believing the child to have been still-born, and if clothes have been prepared for the infant, it is to be presumed that the mother intended to have preserved it. When, on the contrary, the child has a healthy look, and has been recently born, the lungs swim when placed in water, and their air cells universally contain some air, giving a frothy appearance to the mucus squeezed out of them, there is no doubt that the child has breathed. But we cannot, from these circumstances, say that it has been intentionally deprived of life. Some corroborating facts must be necessary to determine this point, such as the birth having been concealed, and no preparation made for preserving the infant; the cord being untied, by which it has been allowed to bleed to death; or by its being cut longer or shorter than would have been done by a midwife, marks of violence on the child, with the total want of all exculpatory evidence. Physicians are much divided in opinion as to the importance to be attached to the circumstance of the lungs, with the heart attached, swimming or sinking in cold water. Dr Hunter, amongst other objections, states that the child may, when the head alone has been born, breathe, but may die before the body be delivered. A celebrated continental physician, on the other hand, contends that the chest, being compressed within the pelvis, cannot expand, and the air can only enter the wind-pipe without fully inflating the lungs. In this we think him wrong. Again it has been stated, that although the child was born dead, yet artificial attempts having been made to inflate the lungs, they will swim even if the child has never breathed. But in reply to this, it is with great justice urged, that although air may be forced into the lungs, yet it is more partially than in respiration, and the blood vessel will be found empty, or with very little blood, compared to the rest of the sanguiferous system. It is also said that putrefaction will make the lungs swim although the child has never breathed. But Camper, Marc, and other eminent physicians, are of opinion that the lungs putrify later in the still-born child than most other parts of the body, and maintain that this process does not, even in summer, take place in less than six days; and in winter in less than as many weeks. We are inclined to place no inconsiderable reliance on this test, and are happy to find that our opinion is confirmed by the latest writers on medical jurisprudence.

M. Ploucquet, from considering that the lungs in the fœtus contain much less blood than after respiration, concludes that it will be possible to determine whether the child have respired, by comparing the weight of the lungs with that of the rest of the body, by means of an accurate balance. The blood flowing into the lungs by respiration doubles their former weight. Thus, before respiration, the weight of the lungs to that of the body is found to be as one to seventy, while after respiration it as two to seventy. Other physicians give a different proportion, making it as one to fifty-nine before, and one to forty-eight after respiration. Lecieux states, from a great many experiments, that there is no constant relation. The lungs of a full grown fœtus, before respiration, are found to weigh nearly eight hundred grains. The absolute, as well as the relative weight of the lungs, may, with propriety, be attended to. By calling in the assistance of all these tests, we can seldom be at a loss to decide, and our opinion will be confirmed if we observe signs of injury.

STITCHES. A term used to express acute shifting pains in any part of the body, but most frequently applied to pains in the side, produced by quick walking. These pains frequently arise from flatulence, or from over excitement of the circulation.

STOMACA'CE. A fœtid state of the breath, proceeding from a foul state of the mouth, and accompanied with a thin bloody discharge from the gums. It is one of the symptoms in cases of bad scurvy. The treatment consists in rectifying the digestive organs, which are generally disordered, and in cleansing the mouth with gargles of alum, or borax, combined with a small quantity of tincture of myrrh. Such as the following:

Take of Tincture of myrrh, two drams.
—— Alum, half a dram.
—— Infusion of roses, five ounces.
—— Honey, one ounce.
Mix together.

The gargle may be used three or four times a-day, and the mouth, moreover, occasionally washed with vinegar and water. In cases of scurvy, of course, the usual remedies recommended when treating of that disease, are to be used besides.

STOMACH. A membranous bag, composed of three tunics, or coats, and situated in the *epigastric region*, and in shape is not unlike the bag of the bagpipe; it is divided into a great and little curvature—the *cardiac*, or superior opening, and the *pylorus*, or inferior opening. The cardiac, or upper opening, is the lowest part, or termination of the œsophagus, or tube by which the food is conveyed into the stomach, and the pyloris, or inferior opening, which opens into, or terminates in, the intestines. The stomach is united with the œsophagus at one end, and with the duodenum, or intestines, at the other, with the pancreas at its posterior or back part, and with the omentum at its anterior or front. It is supplied with arteries, veins, nerves, absorbents and glands, and the latter are situated under the internal tunic or coat. The uses of this important and essential organ of the body, are to receive the food from the œsophagus, and to return, mix, digest, and expel it into the duodenum, or upper part of the intestines. This has been denominated by some physicians and physiologists as the ruling organ of the human body; and indeed, it is wonderful, considering the usage it receives from its owners, and the many insults to which it is subjected, that it does not more speedily and effectually resent them. It is either immediately or more remotely connected, in a greater or lesser degree, with the slightest deviation from health, or the most trifling injury inflicted on any part of the system, sympathizing often in the most tender and delicate terms, and at other times refusing to be pacified either with food or physic. The maintenance of sound health depends in a great measure on the treatment the stomach receives, and its recovery, when lost, is equally dependent on the renovated tone of this organ, subject to a greater number of diseases than any other in the human body. In the second cut of the thoracic and abdominal viscera, under the article *Abdomen*, a portion of the stomach, marked *c*, in its relative position to the other viscera, will be seen from behind the transverse arch of the *colon*, but its shape and connection as the centre of the alimentary canal will be better understood by the article *Alimentary Canal*. The external region of the stomach is marked Regions. (Article *Abdomen*.)

STOMACH COMPLAINTS. Under this head we intend to treat principally of dyspepsia, as it is one of the most frequent diseases to which the stomach is liable. Indigestion is, without doubt, the most frequent of all diseases. It occurs in every country, in every season of the year, and in every class of the community. Although it is devoid of the danger which accompanies other diseases, it is, notwithstanding, equally annoying to the patient, destroying many of the sources of his enjoyment, and producing in several instances all the miseries of confirmed hypochondriasis. Physicians have, for a great length of time, made this disease the subject of inquiry, but it yet remains involved in much obscurity. Its pathology is little understood; the method of its treatment is imperfectly known, and the greatest differences of opinion exist regarding the extent to which it influences the production of other diseases. On these accounts, therefore, indigestion is entitled to a full and accurate investigation. By the term dyspepsia, in its most precise signification, physicians understand that condition of the stomach in which its functions are disturbed, without any other disease being present. But in practice it will be found extremely difficult to restrict the meaning of the term within such confined limits. In every disorder to which the human body is subject, the functions of the stomach are more or less disturbed, and therefore the above limitation of the acceptation of the term dyspepsia, would imply a previous knowledge of the diagnostic features of many very hidden forms of disease. Therefore the term ought to be confined to those cases in which the functions of the stomach are impaired, without any of the symptoms of general fever, of local inflammation in the organ itself, or of any very evident cognizable disease in a distant part.

Symptoms. The symptoms of dyspepsia are much diversified. They may be conveniently divided into such as are referable to the stomach itself, or to its sympathies with other parts of the body, particularly the great intestines, kidneys, heart and lungs, brain, and nervous system. Nausea, pain in the region of the stomach, or under the false ribs; heart-burn; a sensation of fulness, distention, or weight in the stomach; a feeling as if a ball were lodged in the gullet; acid or fœtid eructations; vomiting, particularly of a clear liquor, sometimes of an acid nature, and frequently in great quantity; a sensation of sinking or fluttering at the pit of the stomach; and, lastly, loss of appetite, may be enumerated among the first. To the second head of dyspeptic symptoms, among many others, may be referred costiveness, or an irregular state of the bowels, with a diseased appearance of the evacuations; pain of the loins, and turbid urine; a very unpleasant taste in the mouth, particularly on first waking; a feeling of heat in the mouth similar to that which is produced by the use of Cayenne pepper; toothache, palpitation, pulsation in the region of the stomach, irregularity of the pulse; a short dry cough, and

occasional difficulty of breathing; giddiness and headache, occasionally referred by the patient to the fore, but more frequently to the back, part of the head; languor, lassitude, and great depression of spirits, with the fear of death, or of approaching evil; in one word, hypochondriasis. These last evidences of derangement of the nervous system, denote a very aggravated state of the disease. The tongue is generally attentively examined by the physician, as affording evidence of the state of the stomach, but the tongue will very frequently be found perfectly clear when the stomach is most disordered. Physicians, indeed, are of opinion that the morbid appearances of the tongue—its fur, dryness, preternatural redness and smoothness, and its chapped aspect, are to be referred rather to the state of the constitution than to any particular disorder of the stomach. But in those cases in which we observe the tongue furred and moist, (its general appearance in common dyspepsia,) that is to say, when the secretions of the mouth are in an unhealthy state, we may reasonably suppose that there exists a like disordered condition of the secretions of the stomach. In adults, dyspepsia sometimes gives rise to a state of slight feverishness. This is very frequently seen in infants, in whom it occasionally increases to a state of high and dangerous excitement. Very anomalous pains occasionally arise from simple dyspepsia, for example, pain in the heel, calves of the legs, or wrists.

Process of healthy digestion. There appear to be three great steps in the process of digestion: 1st, The first of these is, an intimate mixture of the food with certain fluids of the body, especially the saliva and secretions of the stomach. It is very probable that these have a much more important office assigned them than simply lubricating the coats of the first passages, and moistening the food; but physiologists are divided in opinion as to their exact operation. The idea of a chemical solution of the food in the gastric juice, is still believed by some, but it is at complete variance with the results of chemical analysis. Another class of physiologists are of opinion, that the action of the animal fluids, to a certain extent, is to be referred to fermentation, by which the food is approximated to its own nature, by a process peculiar to the operations of life, but similar to some acknowledged chemical phenomena.

2d. The detention of the food in the stomach, for a certain period of time, is the second important stage of the function of digestion. At this period of the process, the food is brought gradually into contact with its coats, and exposed to the influence of its nerves. It is in that organ that the peculiar vital action is exerted upon the food, which renders digestion so entirely different from a chemical operation, and which suspends ordinary chemical agency. In this stage of digestion it likewise appears that the food is reduced to its proper consistency, as far as regards fluidity, the absorbents of the stomach speedily removing any superfluous fluid, and thirst being induced when the secretions of the stomach are insufficient for the proper moistening of the mass.

3d. The propulsion of the chyme into the duodenum, where it becomes mixed with the bile, and the fluid secreted by the pancreas, is the third step in the state of digestion. The exact length of time during which the aliment remains in the stomach has never yet been ascertained. It varies in different individuals, and evidently depends upon the energy of the stomach. It likewise varies in the same individual at different times, according to the nature of the food and its facility of digestion. From experiments made upon some of the lower animals, physiologists are of opinion, that from three to four hours is perhaps the average time. At the expiration of this period, the pyloric orifice of the stomach, which had previously been closed, now dilates by degrees, so as to permit the mass of food to enter into the duodenum, the stomach continuing entirely empty until the next meal. In the duodenum, the chyme, mixing with the bile and pancreatic fluid, remains for some time, and changes on it then occur which are indispensable to the completion of digestion. The food passes from the duodenum into the loose portions of the small intestines, and thence into the great guts. In a state of perfect health, the whole process of digestion is finished in twenty-four hours from the time of meal, at which period the excrementitious part of the food is ready for expulsion.

Proximate cause of indigestion. Having given the above brief account of the process of digestion, we proceed to give an explanation of the different modes in which dyspepsia may arise.

1st. Dyspepsia may be occasioned by a morbid condition of the nerves of the stomach. This is the proximate cause of the disease in the majority of cases. It is frequently connected with general torpor, and deficient nervous energy throughout the system generally. In consequence of the supply of nervous power being inadequate, the food remains too long in the stomach, where it undergoes no other changes than those to which it would have been subjected out of the body, namely, fermentation and putrefaction. But besides this, when the supply of nervous influence is deficient, the glands subservient to digestion do not contribute their proper share of assimilating fluids. The saliva may be decreased in quantity. The juice secreted by the stomach (gastric juice) may be deficient in quantity, or altered in quality. It may be too thin or too acid. It

may be so tenacious as to adhere firmly to the stomach. It may be acrid and increased in quantity, as well as vitiated in quality.

2d. A low or subacute inflammation or irritability of the mucous membrane of the stomach frequently gives rise to dyspepsia. When this occurs, the food is either ejected by vomiting, or propelled into the duodenum before it has undergone its proper changes. The duodenum and intestinal canal being adapted to receive the food after it has undergone the first process of digestion, are irritated by food which is not assimilated. Hence bowel complaint very frequently accompanies acute dyspepsia. The indigestion of drunkards arises from low inflammation of the stomach.

3d. Independently of disease in the stomach, dyspeptic symptoms may arise from the functions of the duodenum being imperfectly performed. The accumulation of morbid matter in the duodenum is justly considered the immediate cause of that pain high up in the back, which occasionally accompanies, but is frequently unattended with the more common dyspeptic symptoms. Lastly, the bile may enter into the stomach, and there interfere with the first steps in the process of digestion.

Causes of indigestion. The most important of these are occasional overloading of the stomach, habitual overfeeding, habitual indulgence in spirituous liquors, want of air and exercise, excessive or long continued evacuations, cold, anxiety of mind.

1st. The first and most simple cause of dyspepsia is the occasional overloading of the stomach, or the eating of some indigestible substance, such as tainted meat; which, even in small quantity, is injurious to the nerves of the stomach; or lastly, it may arise from a debauch of wine. This form of dyspepsia is generally accompanied with a sense of oppression at the stomach, nausea, and that peculiar kind of headache called the megrim. It ought to be carefully distinguished from every other, because it requires a particular mode of treatment. It may be denominated the acute or accidental dyspepsia.

2d. The second cause of dyspepsia is full living, particularly the too frequent use of animal food. This is one of the most frequent causes of dyspepsia in the upper ranks of society, and is easily distinguished from all others by its making its appearance along with gout. The dyspepsia which occurs in gouty habits is frequently extremely obstinate, and is very little influenced by the exhibition of remedies. It yields only to a fit of the gout.

3d. The third is the abuse of spirituous liquors. This is by far the most frequent cause of dyspepsia in the lower ranks of life. Dyspepsia arising from this cause is frequently a very severe, and always an obstinate disease. In most cases it is attended with a very severe pain in the region of the stomach. It may likewise be distinguished by the trembling hand which always accompanies it. This and the preceding form of dyspepsia can only be cured by the removal of the exciting cause; and any other mode of treatment which may be adopted will be either ineffectual or tend only to aggravate the evil.

4th. The fourth cause of indigestion arises from the want of air and exercise. A sluggish and inactive state of the body always extend their influence to internal organs, and the stomach is the first to become diseased. Hence it is that all those who engaged in sedentary pursuits generally labour under this complaint. The luxurious and dissolute, and the most industrious and sober individuals, are alike its victims. The most urgent symptoms in this form of the complaint are, distention of the stomach by wind, particularly after meals, eructations, and a costive state of the bowels. To a certain extent this form of complaint admits of relief by the exhibition of remedies, but the slightest irregularity of diet is frequently sufficient to bring on a renewal of the disagreeable symptoms.

5th. Excessive evacuations, such as flooding, and copious bleedings at the arm, and likewise more moderate evacuations; for example, leucorrhæa, or protracted suckling, also constitute another cause of primary dyspepsia. Among the lower orders of this country, it is a very common practice to keep children at the breast for eighteen months, or even two years, which, in women of a weakly habit, produces some of the most distressing forms of this complaint which are ever witnessed. A sense of sinking at the pit of the stomach, giddiness, dimness of sight, a feeling as of different objects dancing before the eyes, a small, and often imperceptible pulse, are the peculiar characters of this variety of dyspepsia. The administration of tonic medicines in this form of the disease is attended with great benefit.

6th. In the next place, dyspepsia may arise from the influence of cold moist atmosphere. Hence dyspeptic complaints are more frequently met with when the cold weather first makes its appearance.

7th Mental emotion, particularly the depressing passions, fear, grief, but particularly anxiety, is the last source of primary dyspepsia which we require to notice. This form of the complaint can only be benefited by change of air, of scene, and of agreeable society.

Treatment of indigestion. In every form of dyspepsia very great attention ought to be paid to the diet of the patient, not only with reference to the quality, but likewise to the quantity. It should consist of animal and vegetable food in proper proportions, but the former ought to

be taken only once a day. Great varieties of food at any one time should be avoided. Roasted meat is preferable to boiled meat, in consequence of being more digestible; and mutton is more digestible than beef. All articles which are digested with difficulty should be avoided; for example, all kinds of smoked, hard, dried, salted, and long kept meat. All those dishes in which a great deal of nutritious matter is collected in a small space, such as eggs, potted meats, strong soups, pastry, and all preparations of suet, fat, and butter; lastly, all raw vegetables, particularly cucumbers, lettuces, radishes, onions, and melons, ought to be strictly prohibited.

Regimen. Walking is of all exercises the best. It can never be compensated by the passive exercises of the rich.

Medicine. In the treatment of primary dyspepsia, the objects to be kept in view are, first, to free the stomach from offending matter; secondly, to improve the tone or energy of the stomach; and lastly, to relieve painful and distressing sensations. The medicines which are calculated to fulfil these several intentions are, emetics, purgatives, mild laxatives, bitters and stimulants, absorbents, mercurial alteratives, and narcotics. We proceed to mention those cases in which each of these classes of medicine applies, and likewise the principles upon which they are supposed to act.

1st. In the acute dyspepsia we ought to free the stomach from offending matters, and afterwards to allow it gradually to recover its tone. In those cases in which full vomiting has not taken place by the efforts of nature, twenty grains of the powder of ipecacuanha may be administered. Next morning an aperient draught may be exhibited.

2d. Occasional brisk purgatives, such as the infusion of senna, or twenty grains of the powder of jalap, or thirty grains of the powder of rhubarb, will be found very beneficial in those cases of dyspepsia which are not of long standing, and which occur in individuals of robust habit. A mild attack of the complaint is frequently cured by a dose of epsom salts, or a seidlitz powder.

3d. Laxatives in small doses, just sufficient to keep the bowels open, are extremely useful in common or habitual dyspepsia. With this view a compound rhubarb pill may be taken twice or thrice a day.

4th. Bitters, astringents, aromatics, and other stimulating medicines called tonics, have been extensively used in cases of dyspepsia. Of all these, perhaps the infusions of gentian, cascarilla, and camomile will be found most useful.

5th. Absorbents, for example, lime water, soda water, magnesia, and the carbonate of soda, may be administered either alone or in combination with other medicines, in those cases in which heartburn and arid eructations are particularly distressing.

6th. Mercurial preparations are often administered in simple dyspepsia, not as purgatives, but as alteratives. With this intention, in those cases in which the stools are clay coloured, three grains of the blue pill given at bed time frequently prove advantageous.

7th. There is a class of medicines employed for the cure of dyspepsia, the agency of which is decidedly upon the nervous system; and of these the oxyde of bismuth and the hydrocyanic acid are the most efficacious. Of course the latter of these remedies should never be prescribed by the domestic practitioner.

8th. Lastly, in obstinate cases of indigestion much may be accomplished by change of air and travel. When the circumstances of the patient permit this, it ought never to be neglected.

STOMACH, Inflammation of. Inflammation of the stomach is of two kinds, acute and chronic. Acute inflammation is ushered in by rigors, acute burning pain in the region of the stomach, accompanied by sense of fulness of the organ; the pain is aggravated by the patient attempting to draw a long breath, and the slightest pressure over the part gives rise to intense suffering; there is frequent vomiting, and the symptoms are all exasperated on attempting to swallow any food; there is also urgent thirst, whilst at the same time drinks are rejected from the organ almost as soon as swallowed; the pulse is small and rapid, the tongue full, with raw red edges and tip, and the skin hot and dry in the first stage, and there is great anxiety and restlessness. This is always to be regarded as a very formidable disease, and if the above-mentioned symptoms are not soon alleviated, the disease gains ground rapidly; there is great loss of strength, the tongue becomes parched and brown, the thirst is excessive, and the vomiting almost constant; then faintings take place, cold clammy sweats, the pain suddenly ceases, there is frequently hiccup; symptoms of coma supervene, and death soon terminates the sufferings of the patient. Inflammation of the stomach may arise from various causes which produces irritation of the mucous membrane, such as acrid substances taken into the stomach; as for example, the various acrid poisons, indigestible articles of diet, or from the sudden application of cold to the organ, as when cold drinks or ices are taken whilst the body is overheated, or from general exposure of the whole body to sudden change of temperature.

Treatment. Blood-letting is the remedy on which we must place our chief dependence in the treatment of this formidable disease, and the apparently weak state of the pulse must not deter us from doing so when symptoms such as we have described are present, for the small rapid pulse is one of the symptoms of the dis-

case. General bleeding should be had recourse to at first, and carried to the extent of making the patient feel faint, then if the patient be tolerably strong, leeches may be applied over the epigastric region, and followed by a blister or sinapism. Immediately after the general bleeding, the bowels should be emptied by means of an enema, and a pill, containing two grains of calomel, and two of opium, should be given by the mouth every third hour; if the calomel cause much nausea, then the opium should be exhibited alone, for there can be no doubt that it exercises a powerful effect in inflammation by its sedative action on the nervous system, by allaying the local irritation at the same time, and by causing gentle perspiration, and with this last intention small quantities of ipecacuanha may be combined with it. When the irritability of the stomach, and consequently the vomiting becomes less, then small doses of castor oil, or some other gentle laxative should be given, with a view to clear the intestinal canal of any acrid or irritating substance. The warm bath, when the patient is able to bear it, is also a valuable auxiliary in treating this malady. With regard to regimen, drinks should be given very sparingly, and of the blandest nature, such as whey, or thin barley or rice water; if the patient be allowed to drink as the feeling of thirst would urge him to do, the worst consequences follow, for instead of allaying his thirst, he only aggravates it, by adding to the irritability of the stomach, and increasing the vomiting. The food should be small in quantity, and easy of digestion, such as thin arrow root, and the like; the patient requires to be very cautious in his diet for a long time after he has recovered from the attack. In the latter stages of the disease, where symptoms of sinking and depression take place, the exhibition of stimulants become imperative, but it is scarcely necessary to say, that there is then but little hope of a favourable termination under any treatment.

Chronic or subacute inflammation of the stomach. This form of the disease, although less violent in its symptoms, is perhaps on that very account more dangerous than even the acute form; for, from the insidious manner in which it makes its approaches, the patient and his friends are thrown off their guard; the disease is treated as a "bilious attack," and medical aid is only sought when too late to be useful. This form is most common in aged or delicate persons, and may follow either exposure to cold, or from eating some indigestible article of diet. The symptoms are very variable; generally there is a feeling of cold and lassitude, and slight headache and uneasiness, in short, what is termed in common language, "being all out of sorts." There is nausea and vomiting of bilious fluid, in small quantities, mixed with viscid mucus, and this vomiting is attended with temporary relief; soon, however, the vomiting becomes more frequent, there is great thirst, and feeling of distention of the stomach; all articles of food aggravate the symptoms until rejected from the stomach; there is perhaps dull pain on pressure, and the bowels are sometimes loose, and other times costive; the pulse is often not much altered, but the tongue and skin afford perhaps the best guides to us in forming our diagnosis of this disease. The former is red and glazed around the edges and tip, and there are small apthous sores at different parts of the mouth; the skin feels dry, harsh, and of a burning pungent heat, the feet and hands are generally cold. The great danger is, that the patient's friends, on supposition that these symptoms proceed from what they term "bile and indigestion," prescribe stimulants, such as brandy, weak toddy, and the like, alternated perhaps with irritating purgatives, such as antibilious pills, salts, senna, &c., thereby adding fuel to the fire. The treatment should consist in free local blood-letting, by means of leeches or cupping, or in some cases even general bloodletting, followed by blisters, and doses of calomel and opium, followed by small doses of castor oil and bland enemata; hot bottles should be kept constantly to the feet, and the occasional use of the warm foot-bath often proves highly serviceable. The regimen, as regards diet, drinks, and caution, after recovery, is similar to that recommended when treating of the acute form of the disease.

STOMACH-PUMP. A small pump, from its application called the *stomach-pump*, has lately been introduced into practice, for removing poisons from the stomach in cases where the action of vomiting cannot be excited. It has already saved many lives. It resembles the common small syringe, except that there are two apertures near the end, instead of one, which, owing to valves in them, opening different ways, become what are called a *sucking* and a *forcing* passage. When the object is to extract from the stomach, the pump is worked while its sucking orifice is in connection with an elastic tube passed into the stomach; and the discharged matter escapes by the forcing orifice. When it is desired, on the contrary, to throw cleansing water or other liquid into the stomach, the connection of the apertures and the tubes is reversed. As a pump may not be always procurable when the occasion for it arises, the profession should be aware, that a simple tube will, in many cases, answer the purpose as well, if not better. If the tube be introduced, and the body of the patient be so placed that the tube forms a downward channel from the stomach, all fluid matter will escape from the stomach by it, as water escapes from a funnel by its pipe; and if the outer end of the tube be

immersed in liquid, there will be, during the discharge, a siphon action of considerable force. On changing the posture of the body, water may be poured in through the same tube to wash the stomach. Such a tube, made long enough, might, if desired, be rendered a complete bent siphon, the necessary preliminary suction being made by a syringe, or by the mouth through an intervening vessel.

STOMACH, Ulceration of. We have placed this disease under a separate head from inflammation of the stomach; for although ulceration of the stomach, like ulceration in all other parts, is a termination of inflammatory action, yet in this organ it generally succeeds inflammation of such a subacute chronic character that the usual symptoms of inflammation will be seldom recognised by non-professional persons, and the first stage of the disease is not unfrequently treated as indigestion. We have, therefore, thought best, under this head, to give the following separate remarks, extracted from Dr Abercromby's admirable work on the Diseases of the Stomach and Intestinal Canal. 'This organic disease,' says Dr Abercrombie, 'exists in two conditions, namely, chronic inflammation of a defined portion of the mucous membrane of the stomach, or the mucous follicles, and the termination of this by ulceration. In both these conditions, it may probably be the subject of medical treatment; for we have reason to believe that the inflammation may be arrested and prevented from passing into ulceration; and that the ulceration may heal before it has become connected with any permanent change in the organization of the part. Hence appears the importance of minutely watching the progress of the disease in its early stages, in which only it is likely to be treated with success. The difficulty here is in the diagnosis, the disease often assuming the character of a mere dyspeptic affection through a great part of its progress; while, in fact, a morbid condition of a very serious nature is going on, which would require treatment in many respects very different from that adapted to dyspepsia.

'The disease may be suspected when there is pain in the stomach occurring with considerable regularity immediately after meals, and continuing for a certain time during the process of digestion, especially if the pain be distinctly referred to a particular spot, and if there be at that spot tenderness on pressure. It may be farther suspected, if the pain continues severe until the patient is relieved by vomiting; but we have seen that the disease may go on to a very advanced period without vomiting; and, on the other hand, that it is sometimes indicated by vomiting occurring occasionally, without any regular periods, and with very little pain. When this feeling occurs with great intensity after food of all sorts, taken even in the most moderate quantities, we have reason to suspect disease of the mucous membrane of the stomach. The feeling appears to be in some cases connected with the formation of an acrid fluid, which we often see brought up in considerable quantities; and in others seems to depend merely upon the morbid condition of the mucous membrane itself; in consequence of which, ordinary articles produce that peculiar feeling of irritation which in the sound state of the parts is produced by matters of an acrid quality. It is common to hear such patients say, that attention to diet makes little difference in their feelings, but that every thing turns immediately to intense acridity, even a bit of meat, or a glass of cold water. The disease may be also suspected, when, along with any of the above mentioned symptoms, though in a mild and obscure form, the patient is becoming weakened and emaciated in a manner which a mere dyspeptic affection could not account for. The affection, again, is sometimes accompanied and characterized by a raw and tender state of the tongue and throat; in some cases, with minute ulcers, and in others with the formation of slight aphthous crusts. One gentleman lately stated to me that his complaint began with minute ulcers, and a burning sensation on the tongue, and that he afterwards distinctly felt the same state of disease extending gradually along the œsophagus, and at last into the stomach.

'Amid such a diversity of symptoms as occur in connection with this disease, our chief reliance in the diagnosis must probably be on a careful examination of the region of the stomach itself, with the view of discovering the existence of tenderness referred to a particular part. This examination should be made with the most minute attention, at various times, both when the stomach is full, and when it is empty. If induration be discovered, the character of the case will be obvious; but we have seen that most extensive ulceration may exist without any induration, and likewise that extensive induration may exist without being discovered by external examination.

'There are other important cautions with regard to the diagnosis. In particular, we should not be deceived either by the pain having remarkable remissions, and the patient enjoying long intervals of perfect health, or by remarkable alleviation of the symptoms taking place under a careful regulation of the diet; for these circumstances we have found occurring in a very striking manner, while the disease was making progress to its fatal termination.

'When the disease is detected at an early period, the treatment must consist chiefly of free and repeated topical bleeding, followed by blistering, issues, or the tartar emetic ointment. The food must be in very small quantity, and of the mildest quality, consisting chiefly or entirely of farinaceous articles and milk, with total absti-

nence from all stimulating liquors; and it would appear to be of much consequence to guard against any degree of distention of the stomach, that can possibly be avoided even by the mildest articles. The patient should abstain in a great measure, from bodily exertions; and hence the importance of endeavouring to distinguish the disease from mere dyspepsia, as the regimen and exercise which are proper and necessary in dyspeptic cases would in this case be highly injurious.

'In the early stages, little probably is gained by medicine given internally, beyond what is required for the regulation of the bowels. In the more advanced stages, or when there is reason to suspect that the disease has passed into ulceration, the same observations will apply in regard to external applications and regimen; and benefit may now be obtained by some internal remedies, such as the oxide of bismuth, lime water, and nitric acid; and, in some cases, small quantities of mercury appear to be useful. Small opiates, combined with articles of a mucilaginous nature, appear frequently to be beneficial; likewise articles of an astringent nature, such as kino, alum, and the rhatany root. The arsenical solution has also been recommended, and small doses of the nitrate of silver; and in several instances in which I suspected this disease to be going on, I have found remarkable benefit from the sulphate of iron. Whether the disease can be cured, after it has advanced to ulceration, must indeed remain in some degree a matter of doubt; because, in a case which has terminated favourably, we have no means of ascertaining with certainty that ulceration had existed. In some of the cases, however, which have been described, we have every reason to believe that some of the ulcers had cicatrized, though the disease had afterwards gone on to a fatal termination; and from what we observe in the intestinal canal, we can have little doubt that simple ulceration of the mucous membrane may cicatrize. I am satisfied that I have seen the cicatrices of such ulcers when the patient has died of another disease, after having been for a considerable time free from any symptom in the bowels.' *Dr Abercromby on Diseases of the Stomach*, &c.

STOMACHICS. A popular term used to denote medicines which excite an appetite, and strengthen the tone of the stomach, by promoting digestion, such as the various bitters, aromatic tonics, &c. Some stimulants also are denominated stomachics, such as pepper, ginger, and various condiments used with food to promote digestion, and remove flatulent distention of the stomach.

STONE OR CALCULUS. Every hard concretion, not bony, formed in the body of animals. The article *Calculus* treats of the variety and chemical composition of these concretions. We shall add here a few words respecting their probable origin, and the cure of this disease in man. These concretions originate immediately in a disturbance of the secretions; but this disturbance may, perhaps, in most cases, be caused by a disordered condition of the juices, particularly of the blood, and a want of due assimilation. This may be supposed, because, in the complaints of the gravel and the gout, which frequently interchange, the digestion almost always suffers, and acid is found in the primæ viæ; also, because cattle often have biliary calculi in the spring, which disappear after they have fed for a time on green fodder. Calculi form themselves in those secreted fluids which contain many ingredients, and which have an inclination to assume a solid form, especially in such as are collected in particular receptacles (the gall bladder, and urinary bladder); and they have even been found in the salivary ducts. They consist of a nucleus and several surrounding coats similar or various in their nature. Their component parts vary according to the fluid in which they have been formed. They obstruct the passages, and prevent the discharge of the secreted fluid; they irritate the vessels in which they are contained, and thereby cause convulsions, pains, inflammations, and suppurations; they also affect indirectly other organs, *e. g.*, the stomach, producing sickness and vomiting; the stones in the bladder occasion itching in the glands of the genitals, pains in the loins, testicles, &c. The most common calculi are, *A*. Biliary calculi, often found in great numbers in the bile, sometimes in the liver, from the size of a pea to that of a hazelnut. They are dark, brown, black, and usually polished on several parts of the surface, and generally occasion disease only when they move, and are very jagged. But in such cases violent pains exist, which extend from the right side to the centre of the body. They also sometimes cause periodical and obstinate jaundice. The convulsions and pains which they occasion frequently require the application of particular medicines to relieve the immediate suffering, besides those directed against the disease itself; the patient is often relieved from them by vomiting or by stool. *B*. Urinary calculi are sometimes a kind of coarse sand, called gravel, which sinks immediately to the bottom of the vessel in which the urine is left. Sometimes they are real stones, of the size of a pea, of a walnut, or even of the fist.

It is principally the symptoms produced by this last kind of stones of which we at present mean to treat; and we shall do so as briefly as possible, for stone in the bladder is one of the diseases where the domestic practitioner can do but little to alleviate the sufferings of his patient. Urinary stones may either form in the bladder originally from the urine containing a larger portion than usual of certain salts, which deposits

in that organ in the form of gravel, and the particles of which, when united by the mucous from the bladder, form a nucleus for the formation of a larger connection, or what is perhaps more usual, the nucleus is formed in the kidney, and passes down through the ureter into the bladder. In the latter case, the passage of the stone from the kidney is generally attended with violent pain, commencing at the loins, and stretching down towards the bladder, and along the hips and inside of the thighs; and there is in general violent sickness and retching, with a degree of fever and irritability of the bladder. These symptoms cease on the stone being discharged from the ureter, and the patient is generally relieved for the time; but this is not always the case, for if the nucleus or small concretion formed in the kidney be rough, then the symptoms previously mentioned are at once succeeded by those of stone in the bladder; and these are both marked and most distressing at times, amounting to the most intense agony. There is frequent desire to make water, but the uneasiness in the bladder is not relieved by doing so; indeed, the pain is always most violent when the bladder is emptied, owing to the rough stone being then brought in contact with the tender coats of the contracted bladder. There is violent pain both during and after evacuating the bladder along the course of the urethra, particularly at the orifice. In children, owing to this circumstance, we frequently find the prepuce much elongated, for the little patient is induced by the pain to grasp the penis, and draw forwards the prepuce, until at length it becomes considerably elongated. Often whilst passing urine, the stream stops suddenly, and at the same instant the pain becomes agonizing, and on changing the position the stream re-appears, and the pain is relieved for the time. This symptom is caused by the stone falling on the neck of the bladder, which is the most sensitive portion of that organ, and at the same time blocking up the passage of the urethra; and to avoid this, the patient instinctively has recourse to change of position, the body being generally inclined much forwards during attempts to make water. Sometimes the patient rests on his knees and elbows, or on his head, with the feet resting against some support, having found that he obtains most ease in these postures. A bearing down pain is complained of in making water, and there is often a simultaneous and involuntary evacuation of the contents of the rectum. In children, prolapsus, or falling down of the gut, is common, and it also sometimes occurs in adults. Occasionally there is pain in the testicle, or in the back of the thighs, and very frequently a burning heat in the soles of the feet, and sometimes even a fixed pain in that situation. The urine is mixed with ropy mucus, and in old cases with muco-purulent matter, and after exercise, or any unusual exertion, such as leaping, or from any sudden jerk of the body, the urine is bloody, and indeed in most cases during what is called a fit of the stone, the last drops of the urine are bloody.

At times the patient is tolerably free from pain; but then a fit of increased suffering supervenes, not unfrequently owing to indulgence at the table, or from over-exertion. It may appear strange to our readers that the pain should be less at one time than at another, whilst the cause is always present; but the reason is this, the rough surface of the stone which gives rise to irritation of the bladder, often becomes coated over by a layer of smoother deposit, so as to present a smooth surface, which of course gives rise to less irritation; and it is probably owing to this cause, amongst others, that lime water and other medicines, termed lithontripic, from their supposed power to dissolve concretions, are useful occasionally in allaying pain in this disease. Although these symptoms are very striking, yet they may all be produced by other diseases, such as worms, hemorrhoids, and other causes of irritation about the lower part of the bowels, disease of the kidney, ulceration near the neck of the bladder, disease of the prostate gland, &c. Irritable bladder may also be mistaken for stone, but we should recollect that in irritable bladder there is generally a temporary relief, whilst in stone the pain is aggravated, immediately after passing water. Fortunately, however, we have a certain means of ascertaining the existence or non-existence of a stone in the bladder, by means of an instrument termed a sound, which is made of solid steel, and resembles in form a catheter, only shorter in the beak, or part beyond the curve, and for the purpose being moved more readily through every part of the bladder, to touch the stone, and when this is properly done, we are as certain of the presence of the stone as if we saw it. Sounding, however, is an operation of considerable nicety, requiring great surgical dexterity and tact, and should be performed with great caution and gentleness.

With regard to the treatment of stone, it is either palliative or radical. The palliative treatment must depend on the state of the urinary secretion. Most frequently the urine is acid and acrid, and the deposit forming the stone is uric acid. In such a case, the acid state of the urine would be ascertained by dipping a piece of litmus paper into the urine when recently passed, when the litmus paper would turn red. This point ascertained, we would then recommend abstinence from all acid or acescent diet, wines, or other drinks; and would treat the case by giving small doses of carbonate of soda or potash, either alone or combined with rhubarb, twice or thrice a day, or lime water along with milk, in doses of four ounces, twice or

thrice a day, keeping the bowels gently open by means of occasional small doses of castor oil, and enjoining perfect rest for some time in the recumbent position. If the urine was found to be alkaline, which may be ascertained by means of turmeric paper, which would then turn of a reddish brown, the treatment, as regards diet and medicines, would of course require to be reversed, abstinence from alkaline remedies being indicated; but in either case the water should be tested frequently for the nature of the secretion, and consequently the deposit from it is apt to vary at different times, as is seen from the variety of strata or layers composing some urinary calculi.

As regards the methods employed to obtain a radical cure, these consist in operations for removal of the concretion from the bladder; of course we cannot be expected to enter upon any details of the operations in a work like the present, where they could serve no good purpose, and therefore we shall merely describe briefly the general principles upon which they are founded. In some cases where the stone is very small, say the size of a large pea, or even larger, it is possible, by gradually dilating the urethra, to extract the foreign body, by means of long narrow forceps introduced into the bladder, shut, and then opened, after feeling the stone, so as to catch it between their blades, which are then fixed by means of a sliding ring, and the instrument and calculus gently and gradually withdrawn. Again, the stone may be too large to be so extracted, and yet small and brittle enough to be broken up in the bladder by means of instruments, so that the small fragments may pass off with the urine. This is an operation of comparatively recent date, and is named *lithotrity*, from the stone being ground, as it were, by the instrument.

The cases in which these two operations are applicable are, however, comparatively few, for they pre-suppose a healthy state of the urethra, a small or friable concretion, and that the coats of the bladder are not very irritable, conditions which are not frequently met with when patients present themselves to the surgeon; and we mention these operations more particularly here, for the purpose of drawing the attention of those who may be suffering from symptoms of stone, that they may apply early for advice, and thus perhaps be enabled to avoid what is generally considered the more formidable measure, viz., being cut for stone. This operation, termed lithotomy, is the oldest, and after all the most certain, we would also say the safest, aye, and even upon the whole, least painful of the methods for removing calculi. As usually performed, it consists in cutting by the side of the anus in the perineum, so as to reach and divide the urethra and neck of the bladder, where it is surrounded by the prostate gland. A grooved staff is introduced into the bladder first, and then the incision is made in the perineum to reach the bladder, using the staff as a guide. When the stone is felt with the finger, the staff is withdrawn, and the stone extracted by means of forceps, proper treatment to ward off inflammation and other accidents, being then adopted. When thus performed, unless there be unusual difficulties, the length of time required to extract the stone, is seldom more than three minutes, often one or one and a half, and the patient is at once completely freed from the cause of his hitherto agonizing sufferings. Whereas in lithotrity several sittings are required, and the broken fragments often give rise to increase of suffering by irritating the bladder. At the same time, we would not be supposed to condemn lithotrity, for we think that when patients apply early, and when the stone is small and friable, and case otherwise favourable, that it is the preferable operation, and one which, when restricted to such cases, is likely to be highly beneficial, although it is not likely altogether to supersede the older operation of lithotomy.

STONE-CUTTERS OR MASONS. In Scotland these two trades are usually followed by the same individual, but it is chiefly from the stone-cutting or hewing that any danger to the health ensues, as the trade of a mason, builder, or brick-layer is by no means prejudicial to health. The dust or small particles of the stone or brick broken off in the processes of building, so as to fit the material for the place it is intended to occupy, may, indeed, be occasionally inhaled, but this must be a rare occurrence indeed. Not so, however, with the stone-cutter who frequently bends over the stone on which he is employed, and facts are not awanting to prove that cough, consumption, and other painful affections of the lungs have been produced by inhaling the dust. At a meeting of the British Association in September, 1837, the late lamented Dr Mackintosh of Edinburgh detailed a case of a stone-cutter, in which the patient having died of a cough and other pectoral symptoms of two years' duration, hard black tubercles were found in both lungs, the bronchial glands enlarged and indurated, grating under a knife, and containing portion of a substance like bone, which being analysed, yielded carbonate of lime and silica, and a small portion of alumina. The stone of the quarry where the patient had chiefly worked, was also examined, and found to consist of carbonate of lime, silica, and alumina, from which it is inferred that the deposition in the lungs was derived from the stone imbibed during inspiration.

The most effectual mode of avoiding such consequences, is for the workmen to maintain as erect a position as possible, and when hewing or cutting to cover the mouth with gauze, but especially during the operation of sweeping away

the finer particles of dust on the surface of the stone, for it is during and immediately after this operation, when the fine dust is yet floating in the air, that the stony particles are most likely to be inhaled. We hope, for the sake of this most useful and respectable class of artists, that these plain hints will not be lost sight of, as they are equally applicable for the conservation of the eyes as well as the lungs of the artist. The stone-cutter being also a builder, is liable to all those accidents to which the kindred trades of joiners, bricklayers, and slaters are exposed to, such as falls from great heights, but the effects, by these being generally bruises, fractures, luxations, and wounds, they will be found more appropriately described under these heads.

Much, however, may be done in the way of prevention, and were a more careful inspection made into the state of the scaffolding and ladders, the erection of which is too frequently left to inexperienced hands, more than a tithe of the fatal accidents to which this class of artists are exposed might be prevented. It is not without good reason we state this, as we witnessed a case in which five able men, all fathers of families, had nearly lost their lives by the want of skill and attention on the part of some apprentices who erected the scaffolding; but to their families, and indeed to themselves, the accident had as well nigh been fatal, as all were for ever unfitted for earning their bread, either by their own or any other trade, and now linger out a painful existence. We hope, therefore, these hints will not be lost on those persons whose more immediate duty it is to superintend those important matters, and that workmen themselves will exercise all due prudence in avoiding the necessary exposure of their persons to such eminent dangers. The success which followed the efforts made more than twenty-five years ago, to more effectually protect the persons of those employed in certain factories and mills from injury and mutilation encourages us to hope the best, and to embrace every opportunity that may yet offer for the advantage of other trades connected with the use of machinery.

STONE FRUITS. Several varieties of these are eaten, which are very agreeable to the taste, but it has been proved by experience that they are not so easily digested as other kinds of fruit. The ripe peach has a very pleasant taste, and is very digestive, but the pulp of cherries and plums frequently disagree with the stomach, and have always been considered more indigestible than the first mentioned fruit. Much of the injurious character which has been bestowed upon stone fruits has been owing to their being eaten when unripe.

STRAMONIUM, OR THORN APPLE, or the *Datura Stramonium*. This herbaceous plant, and the seed of thorn apple, are the parts employed. The leaves or herb, therefore, should be collected when the flowers are just beginning to expand, as otherwise the effects of the herb cannot be so accurately ascertained. When the seed is used, it will of course be allowed to ripen, or rather approach that state, before it is gathered, and the root should be taken up late in the autumn, or early in the spring. We make those remarks in the introduction, because we have frequently seen the same herb, on which the seed had ripened, used both for smoking and other purposes, when it is clear that neither leaves nor stalk could possess one-half of the strength; so that to do justice to the remedy, either when used in substance or otherwise prepared, there must be two separate gatherings of the plant, as both the leaves and stalks are dry, and almost erect when once the seed has ripened, The stramonium, although a native of America, grows and thrives in abundance on dry hills and uncultivated places in Britain, and on the continent. The leaves are dark green, sessile, large, egg-shaped, pointed, angular, and deeply indented, of a disagreeable smell, and nauseous taste. It yields its virtues to water and spirit.

Stramonium is employed in mania, and for this purpose, Hufeland gave it in the form of a tincture, prepared of two ounces of the seeds in eight ounces of wine and one of diluted alcohol. Of this wine or tincture the dose was from six to twenty drops in sugared water gradually increased, and even as an anodyne he considered the preparation superior to opium. In this form it has also been employed in epilepsy convulsions, and severe chronic pains. Fomentations of the herb are useful to soften hard and inflamed tumours, and according to Plink the bruised leaves discuss tumours in the breasts of nurses from indurated milk. The powder of the leaves, or the extract formed into an ointment, often relieve the pain and itching of hemorrhoids, and an ointment formed of either is even a better and safer application than either fomentation or bruised leaves, when prepared of the herb collected at the right season. Under the article *Asthma* will be found the mode of using it by smoking for the relief of that disease, but it should be recollected that for this purpose the root and lower parts of the stem are to be preferred, although we are persuaded that the leaves, if collected at the proper season, are little, if anything, inferior to the root and lower stem. The dose of the powdered leaves is one grain, gradually increased to eight in twenty hours, and of the inspissated juice, half a grain to two grains; but this preparation should be used with great caution. There are two kinds of extracts, one prepared from the seeds, and the other from the whole plant, but the colleges have preferred the former, viz., the extract from the seeds, which is given in doses of from two to ten grains in the form of pills twice or thrice a-day. As we have found the

stramonium a most valuable medicine in various affections, we shall sum up our opinion of its virtues in the words of the late Dr Marcet, whose experience coincides with our own, and whose authority stands high with the profession and the public. 'I should say that the most common effect of stramonium, when administered in appropriate doses, (I mean from one-eighth to one grain a dose, which should not be exceeded till its effects have been ascertained), in cases of chronic disease attended with acute pain, is to lessen powerfully and almost immediately sensibility and pain; to occasion a sort of nervous shock, which is frequently attended with a momentary affection of the head and eyes, and a degree of nausea, and with phenomena resembling those produced by intoxication; to excite in many instances nervous sensations, which are referred to the œsophagus, or bronchia, or fauces, and which sometimes amount to a sense of suffocation; to have rather a relaxing than astringent effect on the bowels; to have no marked influence on the frequency of the pulse, though in a few instances it has appeared to render it somewhat slower; to produce but a transitory and inconsiderable dilatation of the iris and pupil; and to have but little immediate tendency to induce sleep, except from *the state of comparative serenity and ease which generally follows the symptoms I have described.*' We beg leave to call the reader's attention to the concluding lines we have placed in italics.

The form we prefer is a tincture of the seeds, and because we have had occasion to prescribe it frequently in the course of this work we think it right to annex the formula.

Tincture of Stramonium.

Seeds of stramonium, a very little bruised, two ounces.
Proof spirit, one pint.

Macerate for seven days, frequently agitating or shaking the ingredient, and filter.

The dose of this tincture is six drops every three or four hours, increasing the dose one drop each time, till the effects are produced, when it is to be omitted. It may be taken in cinnamon or peppermint water, or a sweetened infusion of ginger.

The following is the formula for the *Syrup of Stramonium*

Seeds of Stramonium, one ounce.
Vinegar, one pint.

Macerate for six days, and strain; to the strained liquor add one pound of sugar; so as to form a syrup.

This too is an excellent preparation of stramonium, it is used in the German hospitals in doses of from a tea spoonful, gradually increased to half an ounce, every three or four hours; in nervous and mental affections it is generally combined with some sedative potion. It may be taken in almond mixture, or camphor mixture, or in infusion of ginger. Let it not, however, be forgotten, that valuable as this plant is as a medicine, that every part of it is *poisonous* when taken in large and improper doses. The symptoms produced by the use of this herb, and its preparations, so clearly detailed by Dr Marcet are, the miniature symptoms of poisoning, and the real symptoms, are only an aggravation of these.

Symptoms of poisoning. Delirium, vertigo, or dizziness, sometimes furious madness, stupor, convulsions, paralysis, and cold sweats, which terminate in death. When greatly diluted, however, some of these symptoms may exist to a great degree, and yet the patient recover. As an example, some soldiers mistaking stramonium for a Spanish herb, gathered some of its leaves in a very young state, and after boiling, eat plentifully of them, and the effect, as described by the unfeeling narrator, was "a very pleasant comedy," for they turned natural fools upon it for several days. "One would blow up a feather into the air, another would dart straws at it with much fury, another, stark naked, was seen sitting up in a corner like a monkey, grinding, and making mouths, a fourth would fondly kiss and paw his companions, and sneer in their faces with a countenance more antic than any in a Dutch doll. In this frantic condition they were confined, lest, in their folly, they should destroy themselves; a thousand simple tricks they played, but, after eleven days, returned to themselves again, not remembering anything that had passed."—*Beverley's History of Virginia.* Had these men drunk the decoction, as well as eaten the leaves, Mr Beverley might have seen a very unpleasant tragedy, as the whole eleven would have died.

Treatment. The treatment in this case is similar to that resorted to in poisoning by opium. The stomach is to be emptied by swallowing a scruple, or half a dram, of sulphate of zinc, and after it has been emptied, the patient is to drink freely of vinegar and water, or strong lemonade, coffee with brandy, whisky, rum, gin, or other cordials, and at the same time placed in the tepid bath. See *Opium* for further instructions as to poisoning, and for the use of the stramonium, as a medicine, the article *Asthma*, &c.

A new principle, called *Daturine*, has been lately discovered in stramonium, but little is yet known of its effects as a medicine.

STRANGURY. A painful affection of the bladder, arising either from irritation of that organ, or of the kidney. The symptoms of strangury are—a frequent desire to pass urine, and inability to do so except in very small quantities, and almost drop by drop, attended with violent burning pain in the bladder, not unfrequently the urine is bloody. Strangury frequently follows the use of cantharides, whether that medicine be taken inwardly, or applied

externally, in the form of blister, and it also sometimes occurs during the use of other counter-irritants, such as tartar-emetic ointment, &c., and hence during the use of these remedies in patients who are liable to the complaint, we should make them drink freely of some diluent drink. There is now a preparation in pretty general use called blistering paper, or *tela vesicatoria*, which blisters more rapidly, and is also devoid of this peculiar effect of the common blister. When strangury does occur, the best remedies are small doses of carbonate of soda in some diluent drink, such as barley water, along with a table spoonful of camphor mixture, every two or three hours, warm fomentations over the belly, or the warm hip bath, and the patient should drink freely of barley water, to increase the secretion from the kidneys, and diminish its acrimony. See *Blister*.

STRAWBERRY (*fragaria*). This is one of the most wholesome and most delicious of our fruits. The pulp is light, melting, and, notwithstanding, but little watery, and does not undergo the acetous fermentation in the stomach. It exhales a most delightful perfume, and the flavour is exquisite, especially immediately after being plucked from the stem. The plant belongs to the natural family *rosaceæ*, together with the rose and raspberry. The root gives out several long, slender, creeping shoots, which take root at intervals, and form so many new stocks; the leaves are composed of three leaflets, supported on a long foot-stalk, which is provided with stipules at the base. From the midst of the leaves arise two or three simple, slender, silky stems, from four to six inches high, and terminated by a few white flowers, disposed in a sort of corymb. After flowering, the receptacle increases, acquires a pulpy and succulent consistence, and finally a red colour, when the strawberries have attained maturity. The strawberry is easily cultivated, and numerous varieties have been produced; some of great excellence have been obtained recently. It forces well, and, with a little trouble in choosing a succession of sorts, may be had almost every month in the year. An open situation, and rich, loamy soil, rather strong, is required for most varieties; and from their large mass of foliage and flowers, they must, till the fruit is set, have copious supplies of water. The row culture is most convenient, and frequent renewal ensures vigorous plants and large fruit. A palatable jam, wine and vinegar are prepared from strawberries; and they are sometimes preserved entire, in syrup or in wine.

STRICTURE. This term is used in medical language to denote a diminution or contraction of the calibre of some part of the mucous passages in the body, as for example, stricture of the gullet, urethra, rectum, or gut, &c. Strictures may be either permanent or temporary; the permanent strictures are generally the consequences of inflammatory action, giving rise to induration and thickening of the tissues forming the coats of the particular tube or passage, or from lymph being effused beneath the mucous membrane; or they may arise from the parts passing through other parts which constrict them, as in cases of hernia and internal strangulation of the intestine. The temporary strictures are the result of spasmodic action arising from irritation, hence they are usually denominated spamodic stricture, in contradistinction to the true or permanent. When we speak of stricture, we usually mean those which result from inflammatory action at some previous period. The treatment of stricture depends upon its situation; if the constricted part be within reach, then the gradual dilatation of the tube by means of instruments called bougies, introduced from time to time, is the best method of cure; these do not act merely as mechanical dilators, but by means of the pressure on the parts, they also cause absorption of the effused lymph, and so remove the cause of the constriction. The cases in which this method of cure can be used, are strictures of the gullet, urethra, lower part of rectum, and in obstruction of the nasal duct, or fistula lachrymalis, and in obstruction of the eustachian tube of the ear. At one time the application of caustic was much in fashion for the destruction of strictures, as being more speedy, but it is a dangerous, and at the same time not a very satisfactory remedy, and is now but seldom used. When stricture is situated beyond the reach of surgical interference, the treatment, of course, can only be palliative. Strictures are diseases in which medical aid should be procured early, for great skill and dexterity are required in the treatment. Stricture of the urethra, however, is a disease of such frequent occurrence and importance, that we shall describe it more fully under the article *Urethra*.

STRYCHNIA. A vegetable alkali, found in the fruit of two species of the *strychnos*. It is obtained by the following process: The bean is rasped down as small as possible, and exposed to the action of nitric ether in a Papin's digester. What remains after the digestion is treated with alcohol, and the alcohol is evaporated to dryness, and the residue dissolved in water. To the aqueous solution potash is added, which throws down the strychnia in the form of a white crystalline precipitate. This alkali has also been extracted from the upas poison. The properties of strychnia, in a state of perfect purity, are as follows: It has a crystalline structure (often presenting four-sided prisms, terminated by four-sided pyramids), is of a white colour, has an intolerably bitter taste, and leaves a metallic impression in the mouth; it is desti-

tute of odour, and is not altered by exposure to the air; it is neither fusible nor volatile, except at temperatures at which it undergoes decomposition. It is very little soluble in cold water, 100,000 parts of that liquid dissolving only fifteen parts of the alkali; but it dissolves in 2500 times its weight of boiling water. When it is introduced into the stomach, it acts with prodigious energy. A locked jaw is induced in a very short time, and the animal is speedily destroyed. Half a grain of strychnia blown into the throat of a rabbit, proved fatal in five minutes, and brought on locked jaw in two minutes. A great variety of salts of this alkali may be obtained by treating it with the different acids, and by double decomposition. Sulphate of strychnia crystallizes in cubes, and is soluble in less than ten times its weight of cold water. It consists of sulphuric acid 90·5 and strychnia 9·5. Muriate of strychnia crystallizes in very small needles, and is more soluble in water than the sulphate. Nitrate of strychnia acts with more violence upon animals than the pure alkali. Solutions of the salts of strychnia, when exposed to a heat of 212°, become volatile.

STUDY, Excessive. Under the word *Excess*, we might introduce, and perhaps with some degree of propriety, all those deviations from strict temperance, and the observance of those rules obligatory on men in civilized, and much more in a Christianized state of society. We shall, however, content ourselves with alluding to this solitary case of mental excess, and leave the more tangible subjects to be treated under their various popular appellations. We are happily furnished with some very pertinent remarks on the effects of excess of study on the human frame, by the lamented Dr Reid; and as a proof that it is easier to tender an advice than to act upon it, we are convinced that the Doctor fell a victim, at no very advanced age, to the very vice or failing he so eloquently denounces in others, not indeed, however, by over-storing his head with other men's ideas. 'Although intemperate study,' says Dr R., 'be not one of those modes of excess against which it is peculiarly necessary to guard the youth of the present generation, there is no one, we are convinced, from which more mischievous and dreadful consequences have sometimes originated. Too often talents have been sacrificed to acquisitions and knowledge purchased at the expense of understanding. Literary gluttons may not unfrequently be met with, who, intent only on feeding avaracious appetite for books, accumulate gradually a mass of indigested matter, which oppresses, and in time destroys altogether, the power of intellectual assimilation.

The learning of such men lies a dead weight upon the mind, which, instead of enriching its substance, or adding to its vigour, serves only to obstruct the freedom, or to impede the activity of its operations. The mental enlargement which is thus produced, may be compared not to that natural and healthy growth which is attended by a proportionate measure of strength, but rather to the distention of tympanitis, or to the morbid dilatation of a dropsy. The more a mind of small capacity is crowded with ideas, the greater is there danger of jostling one against another, and thus producing tumult and confusion. What is called a learned man is often a lazy man in disguise, with whom reading is a refuge from the more strenuous task of reflection. A reformation has taken place with regard to literature. With the more rational part of mankind, wisdom is no longer thought to consist in poring over books, any more than counting beads is regarded as devotion.' Many years ago we were consulted with respect to an idiotic man of erudition. It was a case of idiocy arising from an over-strained intellect. The understanding had been broken down in consequence of having been over-loaded. The head of the patient in its best estate might have been compared to a pawn-broker's shop, which is furnished principally with other people's goods, a repository merely of ideas, not a soil out of which an idea ever grew. Since the occurrence of the preceding case, we were desired to give our opinion in another, which was considerably different in the circumstances attending it, although originating apparently from a somewhat similar cause. A young man of very superior talents, a member at that time of one of the colleges of Oxford, had applied most intensely to his studies with a view to the acquisition of the highest honours of the university, which, however, he was suddenly thrown into a despair of attaining, by some new and unexpected rules that were introduced with regard to the mode or the subject of the examinations. There was no just ground for his despondency, but the idea of possible defeat, where he had been previously confident of victory, so dwelt upon and harrassed his mind, as to throw it at last into a state of temporary disorder, and the most excessive irritation. This irritation was accompanied by a singular and sometimes ludicrous caprice. He deliberated for a long time before he could determine on the most indifferent proceeding, and he had scarcely acted upon, before he invariably repented of his decisions. We remember calling upon him one afternoon, and finding him still in bed, from not having as yet been able to determine whether he should put on his pantaloons or small clothes (breeches) for the day. At length he fixed upon the latter, but had not been long risen before he changed that for a different dress. Every thing he did, he regretted having done; and of what he had neglected to do, he regretted the omission. It was for no

long period that the patient remained in this state of imbecility. He recovered after a time the entire possession of his excellent understanding, abandoned all the objects of his academical ambition, and is at present a very respectable member of a learned profession.

Although the intellectual faculties will always be in danger of debility or disorder, from the too intense or too long-continued exercise of them, this will be still more likely to take place when the exercise of them has been confined to one, or but to a few subjects. By sufficiently diversifying the mode, we may protract almost indefinitely the period of exertion. Change of employment is often found to answer the same end as entire cessation from it. The sense of fatigue, for instance, which we experience from the use of our limbs, may be relieved, not by rest merely, but also by again using them in a different manner. On a similar principle, if we have been reading or thinking upon any subject until the attention be exhausted, we almost uniformly find the mind to be again roused and invigorated, by directing it to a subject of a different nature. A person in whose constitution there is reason to suspect a tendency to mental disorder, not only ought to be guarded against too long protracted or intense thinking; but it should likewise be recommended to him, to avoid as much as possible thinking upon questions of a very intricate and perplexing nature. In fine, the most effectual cure for excess of study, which is not always, although frequently, attended with excess of reading, is to create in the mind of the individual a taste for some out-door recreation, and if possible, under circumstances, permit exercise on horseback. Give a young man an interest in the care and employment of a horse, and try by every means to make him believe that his horse and his horsemanship are admired, and he will infallibly desert the library, and study and exhibit himself on his favourite pony, to the certain promotion of both his physical and intellectual health. Or try and excite in his mind a taste for horticulture, floriculture, or agriculture; especially create an idea of the honour and respectability of raising certain roots, plants, or fruits, and your end will be gained. The understanding will assume its seat, and the mind will be firmly established in its throne.

STUPES. Cloths dipt in warm medicated fluids, and applied to sores, bruises, &c. The term fomentation is now more generally used.

STUPOR. Suspension or diminution of sensibility. Stupor is generally symptoms occurring during diseases, or caused by external injury; and must be treated according to the nature of the cause in each particular case. Ample information regarding the treatment of this symptom will be found in the description of those diseases and accidents in which it occurs.

STUTTERING, STAMMERING, OR HESITATION OF SPEECH, are terms implying an interrupted articulation, accompanied generally with more or less of straining and distortion of feature. If owing to a vicious conformation of the tongue, or other organ of speech, it is incurable; but when merely spasmodic, the cure is possible, and sometimes easy. In some cases, stuttering is relievable at once, by avoiding carefully the usual hurried repetition of the same syllable, or by opening the mouth, and allowing simple sound to pass, when any one oral position threatens to become spasmodically permanent. Should it arise from the attempt to speak being made while drawing in the breath, it may be avoided by filling the chest well before beginning to speak. A scale of articulate sounds, or table of articulations, with minute directions as to the proper position of the organs in producing the different sounds, may likewise, in some instances, prove useful to the patient. Within the course of the last year (1840), a new operation for the relief of this annoying infirmity, was invented by Dr Duffenbach of Berlin; but it is an operation attended with no little danger, and the results of the cases hitherto recorded, are by no means so satisfactory as to lead us to recommend it to our readers.

STYE, or *Hordeolum*. A little tumour on the eye-lids, resembling a barley-corn. The stye is strictly only a little boil, which projects from the edge of the eyelids, mostly near the great angle of the eye. This little tumour is of a dark red colour, much inflamed, and a great deal more painful than might be expected, considering its small size. The latter circumstance is partly owing to the vehemence of the inflammation producing the stye, and partly to the exquisite sensibility and tension of the skin, which covers the edge of the eyelids. On this account the *hordeolum* very often excites fever and restlessness in delicate, irritable constitutions; it suppurates slowly and imperfectly; and when suppurated, has no tendency to burst. The stye forms an exception to the general rule, that the best mode in which inflammatory swellings can end, is resolution; for, whenever it extends so deeply as to destroy any of the cellular substance, the little tumour can never be resolved, or only imperfectly so. This event, indeed, would rather be hurtful, since there would still remain behind a greater or smaller portion of dead cellular membrane, which, sooner or later, might bring on a renewal of the stye, in the same place as before, or else become converted into a hard, indolent body, deforming the edge of the eyelid.

STYPTIC. A remedy that has the virtue of stopping blood, or of closing the aperture of a wounded vessel. Many waters and powders are of this nature; but in most of them vinegar is the chief ingredient.

SUB-CUTANEOUS. This term denotes the situation of tumours, abscesses, or foreign bodies, as being immediately beneath the skin. By sub-cutaneous puncture is meant the introduction of a very narrow knife immediately beneath the skin, for the purpose of dividing tendons and other structures, without dividing or incising the skin farther than for the mere introduction of the instruments.

SUB-LUXATION. See *Sprain.*

SUB-MURIATE. A combination of muriatic acid with some solifiable base, but in less proportion than to form a muriate. Sub-muriates and muriates are now more properly named chlorides and bi-chlorides.

SUB-SULTUS TENDINUM. Starting of the tendons; a peculiar spasmodic action of the muscles and tendons of the arm, which occurs in the last stages of fevers, and in other cases where the brain is affected. It is always indicative of great danger.

SUCCORY, or *Cichorium, L.* A genus of three plants, the following of which are the principal, namely :—

1. The tritybus, wild cichory, or succory, is an indigenous biennial, growing on the borders of corn-fields, principally in calcareous soils, where it flowers in July and August. This vegetable is eaten by sheep, goats, and swine, but refused by cows and horses. Its leaves, when blanched, form an ingredient in early spring salads; and, if this plant be cultivated in a light and somewhat moist soil, they will be totally divested of their bitterness. The roots are moderately bitter. If gathered while young, they may be eaten among other vegetables; or, when dried and reduced to powder, they may be usefully converted into bread. In its medicinal properties, the wild succory is cooling and strengthening Its juice, when taken in considerable quantities for several weeks, so as to produce a slight diarrhœa, has been found very serviceable in inveterate cutaneous diseases. In Germany, the roots are dried, cut in small squares, roasted, ground, and minced with coffee; which by some is esteemed as a wholesome corrector of this foreign drug.

2. The endura, or endive, is an exotic annual species, which is generally reared in our gardens as an ingredient in winter salads. It is propagated by scattering the seeds in spots of open ground at intervals, from the beginning of June to the end of July, in order to obtain a supply for the table. The young plants must be removed into beds or borders that have previously been well prepared by the spade. As the chief excellence of endive consists in the whiteness of its inner leaves, it will be advisable either to cover them with flower pots, or to tie them loosely together when nearly full grown, so as to exclude them from the sun for two or three weeks; in consequence of which they will become perfectly blanched. In the winter, they are either covered with straw and mats, or preserved in fresh sand in a dry cellar. In its properties, this plant is not essentially different from the preceding species.

SUDORIFICS may be denominated therapeutic agents, which promote the cutaneous transpiration. When the insensible perspiration is increased, they are termed diaphoretics. When sensible perspiration or sweat is augmented, they are called sudorifics. But most modern physiologists regard the insensible perspiration and the sweat as productions of the same set of vessels, and as differing only in their physical form; the one existing as a vapour, the other as a liquid. In fact, it is supposed that if the cutaneous transpiration be moderate, it is converted into vapour as fast as it is formed; and hence it is termed the insensible perspiration. If, however, it be extracted more quickly than the atmosphere can take it up, an accumulation is the result, and it appears on the skin in the form of drops called sweat. Adelon, however, states, that sweat contains less carbonic acid, and more salts, than the insensible perspiration; but the truth of this assertion is very questionable, on account of the difficulty of obtaining the insensible perspiration for comparison; and, perhaps, from its properties varying at different times. It is highly probable that sweat differs from the insensible perspiration only in its physical form; and, assuming this view to be correct, we easily perceive that sweating may be induced in two ways. First, by increasing the cutaneous transpiration; secondly, by altering the hygrometric state of the atmosphere, so as to render this fluid less capable of holding watery vapour in solution. Hence sudorifics and diaphoretics are not essentially different. The former are generally regarded as being more powerful than the latter; or, as being the same substances exhibited in larger doses. This statement, however, is not absolutely correct, inasmuch as a diaphoretic may act as a sudorific, merely from a change in the hygrometric state of the air.

The most powerful means of exciting the cutaneous exhalation are, the external application of heat, and the free use of diluents. A variety of solid substances have been employed as media for the application of heat; as hot sand, bran, ashes, earth, plaster, saline mud, dung, refuse of the grape, &c.

The hot sand bath is a very old remedy. Dioscorides and Galen mention it. It is a powerful excitant, reddening the skin, and producing copious perspiration. It is used in the maritime departments of the south of France. The saline mud found on the sea-shore has been employed in very hot weather as a bath by the inhabitants of Crimea, and particularly by the Tartars, against hypochondriasis, scurvy, and

scrofula. It increases the heat of the body, and excites sweat. Hot dung is sometimes used in France as a kind of bath against rheumatism, and by the Poles against syphilis. The husk of the grape, and the refuse of the olive, from which the oil has been drawn, undergo fermentation; and in this state have been successfully used in France against acute rheumatism. Water in a liquid form, or in the state of vapour and dry air, are also used as media for the application of heat. Friction, warm clothing, exercise, and cold affusion, are among the numerous means that have been employed to produce sweating. Most of the medicinal agents administered for the same purpose are stimulants; and therefore the constitutional effects (such as excitement of the vascular system, &c.) of the two classes are the same. But the excitement of the system, and the production of sweat, are not always in the same ratio; and it must be admitted, that the sudorific effects of the compound powder of ipecacuanha, and of the antimonial preparations, considerably exceed their stimulant effects on the system generally.

The agents or means used to produce diaphoresis are various, and even opposite. In febrile complaints, when the skin is hot and dry, the best diaphoretics are cooling drinks, acids, and emollients. But in other diseases, when the skin is cold and dry, and there is great prostration of strength, unaccompanied with any local inflammation, diffusable stimulants (as ammonia) are the best sudorifics. In both of these instances, the agents employed are relative; that is, they remove or obviate causes which impede perspiration. As the substances usually denominated diaphoretics or sudorifics frequently fail to act as such, that is, to increase perspiration, some writers have been led to doubt the existence of any distinct class of agents of this kind. But according to the same mode of reasoning, the existence of several other well established groups or classes of medicines might be denied. We ought perhaps here to state that by the term diaphoretic or sudorific, we mean a substance which increases the organic or vital action of the cutaneous exhalants. This explanation is necessary, since Dr Edwards has shown that cutaneous transpiration is effected in two ways, namely, by a physical action or evaporation, and by an organic action or transudation. Evaporation, or the physical action, is the consequence of the porosity of bodies, and takes place equally in the dead and living state. It is influenced by the hygrometric state of the surrounding air, by its motion or stillness, by its pressure, and by its temperature. Thus dryness, agitation, and diminution of the weight of the air, increase it. Transudation, or the organic action of transpiration, being a vital process, depends essentially on causes inherent in the animal economy, although it may be influenced to a certain extent by external agents. Thus elevating the temperature of the surrounding air, prevents its frequent renewal, and covering the patient with warm clothing, are means which promote the organic, but check the physical action of transpiration.

The vital activity of the cutaneous exhalants may be promoted in one or both of two ways; by increasing the force of the general circulation, or by exciting the cutaneous vessels. Ammonia, alcohol, and violent exercise, operate by increasing vascular action generally, while heat and friction act by exciting the cutaneous vessels. Certain medicinal agents, when swallowed, have been supposed to act as diaphoretics, by entering the blood-vessels, and stimulating the cutaneous vessels by local contact.

The operation of diaphoretics is promoted by the administration of large quantities of warm, mild diluents, and by keeping the skin warm. Moreover, these agents are more effective when administered at bed time, since there appears to be a greater disposition to sweating during sleep, than in the waking state. The exhibition of diuretics and purgatives should be avoided, as they check sweating. The older writers explained the occasional beneficial effects of sudorifics, by supposing that some peculiar morbific matter was expelled from the system, the retention of which had produced the disease; and hence sudorifics were enumerated among the Alexipharmaca and Alexiteria. But although cold applied to the skin may produce disorder in some internal organ, it is more in accordance with sound physiology to ascribe the internal affection to a metastasis of vital action, than to the retention of any supposititious morbific matter; for although cold diminishes the vital or organic action of the skin, (transudation), yet it does not prevent physical action (evaporation.)

Sudorifics are employed in a great variety of cases, as catarrhal and rheumatic affections, febrile disorders, chronic affections of the skin, &c. They are principally indicated when the cutaneous transpiration has been suddenly checked, and some internal part (as the bronchial membrane) has become affected; also in diseases which usually or frequently terminate by sweating, as fevers.

SUFFOCATION. The three ordinary modes of suffocation, or death by the interruption of the breath, are hanging, drowning, and the respiration of fixed air, or carbonic acid gas. The same result takes place from either of these causes, which is described under the article *Drowning*, and the same process is required for the restoration of animation. In the instance of suffocation by carbonic acid air, whether arising from mines, lime-kilns, or vats of fermenting liquor, the vital powers become more speedily extinct.

SUFFUSION. This term was formerly

applied to cataract of the eye, the ancients supposing that the whiteness was owing to some opaque fluid being effused behind the lens. Suffusion more properly means an extravasation of blood or other fluid. Thus we say suffusion of the eye, when that organ is what is vulgarly termed blood-shot.

SUGAR. There are two kinds of sugar officinal in the pharmacopeias, viz., *saccharum non purificatum*, or moist sugar, and *saccharum purificatum*, or refined sugar, which are both obtained from the sugar cane, or *arundo sacchifera* of Linnæus. Sugar is principally obtained from the cane, by boiling down its expressed juice with a certain proportion of lime or potash, until the greater part is disposed to concrete into brownish or yellowish crystalline grains, the lime or potash being added to saturate some malic acid, whose presence impedes the crystallization, and the molasses or treacle is that portion of the inspissated juice which does not crystallize. The crystallized portion is the brown or Muscovado sugar, or raw sugar, which sometimes undergoes another process of refinement, by a more complete drainage of the molasses, and this half refined sugar is called clayed, or Lisbon sugar, which is finer and lighter coloured than the former.

A number of processes are used for refining the Muscovado sugar into loaf sugar; and of late years great improvements have been made in the manufacture which is conducted in Britain.

Good loaf or refined sugar has a brilliant white colour, and close compact texture. In its pure state, it is inodorous, and breaks into sparkling transparent splintery fragments. According to its degree of purity, it receives the names of lump or single refined sugar, and of double refined. The raw sugar varies very much in quality; it should be dry, crystallized in large sparkling hard grains, of a whitish or clear yellow colour, without smell, and of a strong sweet taste.

The sugar called brown or white candy, according to its degree of purity, assumes a more regular form of crystallization, by carrying the evaporization only a certain length, and then permitting the syrup to cool slowly.

In addition to the sugar cane, this sweet juice may, and often is, extracted from other plants: the maple, birch, wheat, corn, beet root, skirret, parsnips, apples, pears, and the sap of the walnut tree, by the Tartars; but the only two plants from which it has been considered politic to extract sugar are the American maple and the beet root, but even these two latter are only substitutes, employed when cane sugar is by accidental circumstances not to be had, or only at an exorbitant price. The sugar of the beet root is, however, produced and consumed to a very considerable extent in France, and the maple sugar in Canada.

As to the dietetic and medical properties of sugar, it may be said, from being a luxury, it has now in civilized society become a necessary of life. It may be taken into the stomach in very large quantities, without producing any bad consequences, although proofs are not wanting of its mischievous effects, by relaxing the stomach, and thus inducing disease; but at the same time, it is no doubt a very wholesome and powerful article of nourishment when taken in moderation; and as one proof of this, the negroes always grow fat during crop time, notwithstanding their increased labour. It is very useful as a medicine, although it cannot be supposed to possess much power. It facilitates the suspension or solution of resins, oils, &c. in water, and is given as a purgative for infants. In catarrhal affections, sugar is frequently employed. It has also been advantageously used in calculous complaints. The candied sugar, and what is called barley sugar in particular, by dissolving slowly in the mouth, is well suited to relieve tickling coughs and hoarseness. In sea scurvy its good effects are well known; but in this case the raw or coarse sugar is to be preferred, and it is only the raw sugar that acts as an aperient on the bowels. In pharmacy, it is principally employed to cover bad tastes, or give form to, and preserve more active substances, as it does, in conserves, confections, lozenges, and syrups; but in using it for the preservation of vegetable substances, if the proportion employed be too small, it will promote instead of retarding the fermentation of the articles it is intended to preserve. Externally it is applied to fungous ulcers, either alone in the form of powder, or equal parts of refined sugar and burnt alum. It is in addition an antidote to the poison of verdigris, and other preparations of copper.

In domestic economy, sugar is used in conjunction with salt and nitre, for the preservation of animal food, and in the preparation of candies and preserves, such as jellies, jams, &c. &c. The sugar of the maple is celebrated even on the continent in some disorders of the breast; and the unboiled juice is drank as an antiscorbutic; but in no respects do we believe it superior, either in the form of juice or crystallized sugar, to the product of the cane. Our only regret is, that the product of sugar should have been so fruitful a source of misery and slavery to many of our race; but we rejoice the day has arrived, when the crystallized juice of the cane may be swallowed without the bitter reflection that it is produced by the labour and sweat of an oppressed slave, at least in the British colonies.

SUGAR OF LEAD. *History.* This salt has been known by several appellations, as saccharum, saturim, acetated ceruse, and superacetate of lead.

Preparation. This salt is never made by the apothecary, although directions for its preparation are given in the pharmacopeia, but is procured from persons who manufacture it on a large scale. It is sometimes made by immersing lead in acetic acid. The metal attracts oxygen from the air, and combines with the acid. It may also be procured by dissolving carbonate of lead in acetic acid, filtering the solution, and evaporating so that it may crystallize. But it is now almost entirely obtained by dissolving oxide of lead (litharge or massicate) in acetic (pyroligneous) acid. This process is the one followed in the London pharmacopeia; where four pounds and two ounces of powdered litharge are directed to be dissolved, by the aid of a gentle heat, in a mixture of four pints of acetic acid and four pints of distilled water. The solution is to be strained, and evaporated, so that it may yield crystals. In this process, the oxide, in virtue of its affinity for acetic acid, combines with the latter, and forms a definite compound.

Properties. The primary form of the crystals of this salt is the right oblique-angled prism. Their taste is sweetish and astringent. In a dry and warm atmosphere they effloresce slightly. When heated they fuse, give out their water of crystallization, and at a higher temperature, are decomposed; yielding acetic acid, pyronetic spirit, carbonic acid, inflammable gas and water. The residuum is a mixture of lead and charcoal. Acetate of lead is soluble in both water and alcohol. The aqueous solution feebly reddens litmus, though it communicates a green colour to the juice of violets. A solution of the neutral acetate is partially decomposed by carbonic acid. A small quantity of carbonate of lead is precipitated, and a portion of acetic acid is set free, which protects the solution from further changes.

Characters. When heated with sulphuric acid, the vapour of acetic acid is disengaged. Its solution is known to contain lead by the usual tests for this metal. If a small quantity of acetic acid be added to the solution, a current of carbonic acid occasions no precipitate. The ordinary acetate of the shops usually throws down a scanty white precipitate (carbonate of lead) with carbonic acid. When charred it readily yields globules of metallic lead on the application of the blow-pipe flame.

Purity. It should be readily and completely soluble in water. Sulphuric acid, or sulphuretted hydrogen in excess, being added to the solution, to throw down the lead, the supernatant liquor should be completely volatilized by heat. Any fixed residue is impurity.

Physiological effects on vegetables. Marcet found the solution of acetate of lead injurious to plants; but Wiegmann declares it to be inert, and ascribes its inertness to the formation of an insoluble salt (carbonate) of lead by the carbonic acid of the roots of plants.

On animals. Orfila found that in large doses the acetate of lead acted on dogs as an irritant, and caused vomiting, pain, and death. When the action was slower, an absorption took place, an affection of the nervous system was observed, marked by difficult progression, and in some cases convulsive movements. The mucous membrane lining the alimentary canal was found whitened (owing to the chemical influence of the poison), and when the action was more prolonged, reddened. Injected into the veins, or applied to wounds, it affects the nervous system. Schloepfer produced *colica pictorum* (painter's colic) paralysis, and convulsions, in dogs, by the repeated use of small doses. Dr A. T. Thomson, professor of materia medica in university college, London, gave successively one, two, three, and six drachms to a dog, without any ill effect.

On man. Applied to ulcers, mucous membranes, or other secreting surfaces, it acts as a desiccative and astringent. In large quantities, acetate of lead taken into the stomach acts as an irritant, and causes symptoms of inflammation of the stomach, namely, vomiting, burning in the gullet and stomach, and tenderness at the pit of the stomach; but these are usually accompanied with painters' colic, and are not unfrequently followed by convulsions, coma, or local palsy. According to Dr Laidlaw, ten grains taken daily for seven days caused tightness of the breast, metallic taste, constriction of the throat, debility, sallow countenance, slow respiration and circulation, gums turgid and tender, salivation, tightness and numbness in the fingers and toes, no nausea, pains of the stomach and abdomen, and constipation of the bowels. The observations of Dr A. T. Thomson and others, Van Swieter, Reynolds, Latham, Laidlaw, Dainell, Christison, and other physicians, have, however, shown that injurious effects from the use of large doses are very rare. Dr Christison has given eighteen grains daily for eight or ten days without any unpleasant symptoms whatever, except once or twice slight colic.

Uses. Acetate of lead is administered internally to diminish the diameter of the capillary vessels, and lessen circulation, secretion, and exhalation. Thus we employ it in profuse discharges from the mucous membranes; as from the lungs, alimentary canal, and even the genito-urinary membranes. In the mild cholera, so common in this country towards the end of summer, physicians have found acetate of lead in combination with opium most efficacious when the chalk mixture failed. This combination has been used in cases of malignant cholera, and in one or two with apparent benefit. In diarrhœa and chronic dysentery it frequently

proves serviceable. In consumption it has been found beneficial, but only as a palliative, namely, to lessen the expectoration, check the night sweats, or stop the harrassing diarrhœa. In sanguineous exhalations from the mucous membranes, as bleeding from the nose, the lungs, and stomach, and likewise in the discharge of blood from the womb, it is administered with the view of diminishing the calibre of the bleeding vessels, and thereby of stopping the discharge; and experience has completely established its utility. Acetate of lead is generally given in combination with opium. It has also been employed as a remedy for mercurial salivation. It had already been applied for this affection, in the form of gargle, by a distinguished continental physician. Unless the mouth be carefully washed after its use, it is apt to blacken the teeth. On the same principles that we administer it to check excessive mucous discharges, it has been employed to lessen the secretion of pus in extensive abscesses, attended with hectic fever. As a topical remedy, we use acetate of lead as a sedative, astringent, and desiccative. An aqueous solution of it is applied to inflamed parts, or to secreting surfaces, to diminish profuse discharges. Thus we employ it in phlegmonous inflammation, ophthalmia, in ulcers with profuse discharges, in gonorrhœa, and gleet. In the sloughing and ulceration of the cornea which attend purulent and pustular ophthalmia, its use should be prohibited, as it forms a white compound which is deposited on the ulcer, to which it adheres tenaciously, and in the healing becomes permanently and indelibly imbedded in the structure of the cornea.

Administration. Acetate of lead is administered internally in doses of from one grain, gradually increased to three, four, or more, even to eight or ten grains, repeated twice or thrice daily. Dr A. T. Thomson recommends its exhibition in diluted distilled vinegar, to prevent its change into carbonate, which renders it more apt to occasion colic. It is usually exhibited in the form of pill, generally in combination with opium. Acetate of lead and opium re-act chemically on each other, and produce acetate of morphia and meconate, with a little sulphate of lead. Experience, however, has fully established the therapeutic value of the combination. Sulphuric acid, (as in infusion of roses), sulphates, (as of magnesia, and soda, and alum), phosphates and carbonates should be prohibited. Sulphuric acid, the sulphates, and phosphates, render it inert. The carbonates facilitate the production of painters' colic. Common, especially spring water, which contains sulphates, carbonates, and chlorides, is incompatible with this salt.

SULPHATES. Salts formed by the combination of sulphuric acid with a salifiable base. Thus Glauber's salt or sulphate of soda is a combination of sulphuric acid with soda.

SULPHATE OF COPPER, or BLUE VITRIOL, is a combination of sulphuric acid with copper. It possesses acrid and styptic qualities and is employed in medicine as an emetic, in those cases where we wish to excite vomiting rapidly, as in cases of poisoning; but the sulphate of zinc is preferable in the hands of the domestic practitioner. In minute doses it is used as a tonic, and in solution as an astringent and styptic in arresting the discharge of blood, as in cases of bleeding from the nose, and arresting other discharges, as those in leucorrhœa, &c. It is also applied in substance to sores, to promote a change of action in the part, or to destroy fungoid granulations, or what is usually denominated 'proud flesh.'

SULPHATE OF IRON, commonly known by the name of GREEN VITRIOL, is a salt of a green colour, composed, as its name denotes, of sulphuric acid and iron. It is used in medicine as a chalybeate tonic and emenagogue.

SULPHATE OF ZINC. This salt is principally used in medicine in the form of external applications, as a stimulant and astringent, as in the red lotion, and in most eye-lotions. (See *Domestic Pharmacopeia*). It is also used, however, internally as an emetic, where we wish a speedy effect, as in cases where narcotic poisons have been swallowed; its dose in such cases varying from a scruple to half a dram. In minute doses, combined with extract of gentian or other bitters, it acts as a tonic.

SULPHUR. We shall first give the mineralogical history of this substance. It occurs abundantly in nature, both crystallized and massive. The form of its crystals is an acute octahedron, either perfect, or variously modified, and derivable from an octahedron with equal and similar scalene triangular planes, of which the common base of the two pyramids is rhombic, cleavage imperfect, fracture conchoidal, lustre resinous, colour several shades of sulphur-yellow, inclining sometimes to red or green, streak sulphur-yellow, passing into white, transparent or translucent, sectile, hardness between gypsum and calcareous spar, specific gravity 2.072. The massive varieties occur in imbedded globules, also in large pieces, having a granular or impalpable composition, and an uneven or flat conchoidal fracture. The present species has usually been treated of under two divisions, viz., common and volcanic sulphur, in allusion to the geological situation of the two varieties; the volcanic sulphur being a product of sublimation, while the common sulphur is found in strata not immediately connected with volcanic rocks. Volcanic sulphur appears in the shape of crusts, superficial coatings, stalactites, or loose mealy masses, and consists generally of columnar particles of composition, not unfrequently termi-

nating in crystalline points. Common sulphur has been further divided into compact and earthy, the last of which comprehends those varieties which, on account of the smallness of the individuals in the granular compositions, appear as a friable mealy powder. Sulphur is principally met with in beds of gypsum, or in the accompanying strata of clay. It is generally associated with sulphate of strontian. It also occurs with copper pyrites, galena, and orpiment. It is deposited from several springs, and in large quantities from volcanoes. In Sicily, and several provinces of Italy, sulphur is found in splendid crystals, as well as in globular concretions. It occurs in imbedded spheroidal masses of a brown colour, which is owing to bitumen, at Radoboy, near Crapina, in Croatia. The finest crystals, after those of Sicily, are brought from Conil, near Cadiz, in Spain. It occurs in veins in Suabia, Spain, and Transylvania. The earthy sulphur is found in Poland, in Moravia, and other countries; the volcanic sulphur in Iceland, near Vesuvius in the Solfatara, in fine crystals in Teneriffe, in great profusion near the volcanoes of Java, and in the vicinity of most other active volcanoes. In general, it requires to be purified, either by melting or by sublimation, in order to render it fit for use in the arts.

Sulphur, in a state of purity, is destitute of odour, and of a weak, though perceptible taste. It is a non-conductor of electricity, and of course becomes electric by friction. The specific gravity of roll sulphur varies from 1·97 to 2·00. It undergoes no change from exposure to the air, and is insoluble in water. If a considerable piece of sulphur be exposed to a sudden though gentle heat, by holding it in the hand, for instance, it breaks to pieces with a crackling noise. When heated to the temperature of about 170°, it rises up in the form of a fine powder, which may be easily collected in a proper vessel. This powder is called flowers of sulphur. When heated to the temperature of 218° it melts, and becomes as liquid as water. Between the melting point and 252°, it is as liquid as varnish, and its colour is that of amber. About the temperature of 340°, it begins to grow thick, and assumes a reddish tinge; and if we continue to increase the temperature, it becomes so thick, that the vessel containing it may be turned upside down without the risk of spilling any of it. Between the temperature of 428°, and that of 482°, it is thickest of all, and its colour is reddish brown. From 482° to its boiling point, which is not far from 750°, it becomes thinner, but never so thin as it was when below the temperature of 248°; and its reddish brown colour does not alter. If it be suddenly cooled while in the most liquid state, as by throwing it into water, it becomes instantly brittle; but if it was so hot as to be viscid, and be suddenly cooled, it remains quite soft; so that it may be drawn into threads. In the first case, it crystallizes; in the second, it does not. This state of softness is probably connected with the viscidity; which, when the cold is suddenly applied, prevents the possibility of the particles arranging themselves in regular order. If sulphur be melted in a ladle, or oval vessel, and as soon as its surface begins to congeal, the liquid portion beneath the surface be poured out, the internal cavity will exhibit long needle-shaped crystals. Alcohol, sulphuric ether, and the oils, dissolve a small portion of sulphur. It combines in five proportions with oxygen, and forms five compounds, which have received the names of sulphuric acid, sulphurous acid, hypo-sulphurous acid, subsulphurous acid, and hypo-sulphuric acid. We shall describe the sulphurous acid first. It is formed when sulphur is burnt, either in the open air or in oxygen gas. But the way in which it is usually obtained for experiment, is to heat a mixture of sulphuric acid and mercury in a small retort; a gas is evolved, which is sulphurous acid. It is colourless, is possessed of an exceedingly suffocating and disagreeable smell, precisely similar to that of burning sulphur. Its taste is intensely acid and sulphureous. It converts vegetable blues to red, and then gradually destroys them. Its specific gravity is 2·2293. The gas may be collected over mercury, or received into water, which, at the temperature of 61°, will absorb thirty-three times its bulk, or nearly an eleventh of its weight. It consists of sulphur 50, and oxygen 50. It is used in bleaching, particularly for silks; it likewise discharges vegetable stains and iron moulds from linen. In combination with the salifiable bases, it forms sulphites, which differ from the sulphates in their properties. The alkaline sulphates are more soluble than the sulphites; the earthy less so. They are converted into sulphates by an addition of oxygen, which they acquire even by exposure to the air. By putting sulphuric acid and mercury into the sealed end of a recurved glass tube, then sealing the other end, and applying heat to the former, a liquid sulphurous acid may be obtained; it remains in a liquid state in the air at 0° Fahr.; it is colourless, transparent, and very volatile; specific gravity 1·45. It boils at 14°; but, in consequence of the cold produced by the evaporation of the portion that flies off, the residue remains liquid. It causes a feeling of intense cold when dropped on the hand.

Sulphuric acid is obtained by burning a mixture of about seven parts sulphur, and one part nitre, in large chambers lined with lead. By this combustion, sulphurous acid and deutoxide of nitrogen are formed. The deutoxide absorbs oxygen from the atmosphere, and is converted

into nitrous acid. Both the acids are absorbed by water. The nitrous acid gives out part of its oxygen to the sulphurous acid, and converts it into sulphuric acid; and being reduced to the state of deutoxide, again flies off, unites to oxygen, is converted to nitrous acid, and absorbed by the water. This process goes on till the whole of the sulphurous acid is converted into sulphuric acid. The water, thus acidulated, is evaporated in leaden vessels to a certain point. The evaporation is then continued in glass retorts, till the acid acquires the requisite degree of strength. The ordinary form of a sulphuric acid lead chamber is the paralellopiped, and its dimensions about seventy feet long, ten or twelve high, and sixteen wide. At the middle height of one end, a small oven is built up, with a cast-iron sole, having a large lead pipe, ten or twelve inches in diameter, proceeding from its arched top into the end of the lead chamber. On the sole the sulphur is burned; the combustion being aided, when necessary, by heat applied from a little furnace below it. Above the flaming sulphur, a cast-iron basin is supported in an iron frame, into which the nitre, equal to one-tenth of the sulphur, is put, with a little sulphuric acid. The combustion of the sulphur is regulated by a sliding door on the oven. In the roof of the remote end of the large chamber, a small orifice is left for the escape of the atmospheric nitrogen, and other incondensable gases. This apparatus is used for the continuous process; but there is another, or that of the intermitting combustion, which is worthy of notice. Large flat trays, containing the sulphur and nitre, are introduced into the interior of the chamber, or into the oven, and fire is applied to the materials. When the sulphur is burned, and the chamber filled with sulphurous and nitrous acids, the steam of water is thrown in a determinate quantity by a small pipe at the side. This causes a tumultuous motion among the gases and the atmospheric oxygen, which favours the mutual re-action. As the steam condenses, the sulphuric acid falls with it. After some time, the chamber is aired by opening valves of communication with the external atmosphere. The operation is then commenced anew. Sulphuric acid was formerly obtained by distillation from sulphate of iron; sixty-four pounds are yielded by six hundred pounds of the sulphate of iron. The following are the properties of pure sulphuric acid. It is colourless, has somewhat of an oily or glutinous consistency, and hence the ancient name of oil of vitriol. It speedily chars animal and vegetable substances, when placed in contact with them. It converts vegetable blues to red, and is possessed of an exceedingly acid taste. Acid of the specific gravity, 1·85, boils at the temperature of 620°. The boiling point diminishes with the strength. Acid of the specific gravity 1·78, boils at 435°, and acid of the specific gravity 1·65, at 350°. The quantity of water present in one hundred parts of concentrated and pure sulphuric acid is very nearly 18·46. It consists of three proportionals of oxygen, one of sulphur, and one of water; and by weight, therefore, of 3·0 oxygen + 2·0 sulphur + 1·25 water, which equals 7.125, which represents the combining weight of the concentrated sulphuric acid; while 3 + 2 = 5, which is the equivalent of the dry acid. Sulphuric acid strongly attracts water, which it takes from the atmosphere very rapidly, and in larger quantities if suffered to remain in an open vessel, imbibing one-third of its weight in twenty-four hours, and more than six times its weight in a year. If four parts by weight be mixed with one of water, at 50°, they produce an instantaneous heat of 300°; and four parts raise one of ice to 212°. On the contrary, four parts of ice mixed with one of acid, sink the thermometer to 4° below 0. It requires a great degree of cold to freeze it; and, if diluted with half a part or more of water, unless the dilution be carried very far, it becomes more and more difficult to congeal; yet, at the specific gravity 1·78, it may be frozen by surrounding it with melting ice. Its congelation forms regular prismatic crystals, with six sides. All the simple combustibles decompose sulphuric acid with the assistance of heat. At about 400°, sulphur converts sulphuric acid into sulphurous acid. Several metals at an elevated temperature decompose this acid, with evolution of sulphurous acid gas, oxidisement of the metal, and combination of the oxide with the undecomposed portion of the acid. Sulphuric acid is of very extensive use in chemistry, as well as in metallurgy, bleaching, and some of the processes for dyeing. In medicine, it is given as a tonic and stimulant, and is sometimes used externally as a caustic. The combinations of this acid with the various bases are called sulphates, and constitute a very important class of salts; for an account of which, see their respective bases.—Subsulphurous acid; it has been found that sulphurous acid has the property of dissolving iron, without the evolution of any gas. The acid gives out half its oxygen to the iron, and converts it into the protoxide of iron, which combines with the acid in question, and which consists of half the oxygen found in sulphurous acid. When the salt is decomposed, the subsulphurous acid is resolved into sulphurous acid and sulphur. It seems incapable of existing except in combination with a base. When insulated, half the sulphur separates, and sulphurous acid remains. The hyposulphurous acid also seems incapable of existing except in combination with a base. When sulphuric acid in a slight excess is poured into a dilute solution of hyposulphite of strontites, the whole strontites is thrown down, and the filtered liquid

consists chiefly of a solution of hyposulphurous acid in water. This liquid is transparent and colourless, is destitute of smell, and has an acid, astringent, and very bitter taste. On standing a few hours, it undergoes spontaneous decomposition, the liquid becomes milky, sulphur is deposited, and sulphurous acid remains in solution. Hyposulphuric acid, by causing a current of the sulphurous acid gas to pass through black oxide of manganese, suspended in water, a neutral salt is formed, which, when dissolved, consists of a mixture of neutral sulphate and hyposulphate of manganese. By pouring into this solution barytes water, the whole of the sulphate of manganese is thrown down, while hyposulphate is converted into hyposulphate of barytes, which remains in solution. A current of carbonic acid throws down any excess of barytes that may have been added; and then, by evaporating the liquid, the hyposulphate of barytes is obtained in crystals. These crystals are dissolved in water, and the barytes they contain precipitated by means of sulphuric acid; care being taken not to add the sulphuric acid in excess. The liquid now consists of water holding hyposulphuric acid in solution. This acid is colourless, and destitute of smell. It may be concentrated till its specific gravity is 1·347. It then begins to be decomposed by heat, sulphurous acid flies off, and sulphuric acid remains behind it. It is found that it can be completely resolved into sulphurous and sulphuric acids, in the proportion of four parts of the former to five parts of the latter. Thus we know five compounds of oxygen and sulphur, all of which are acids. Their names, constituents, and combining weights, are as follows:—

	Sulphur		Oxygen	Combining Weight
1. Hyposulphurous acid,	2 atoms	+	1 atom	5
2. Subsulphurous acid,	1	+	1	3
3. Sulphurous acid,	1	+	2	4
4. Sulphuric acid,	1	+	3	5
5. Hyposulphuric acid,	2	+	5	9

Sulphur combines readily with chlorine, forming a liquid compound called chloride of sulphur. It is formed by passing a current of chlorine through flowers of sulphur, or by heating sulphur in a dry glass vessel, filled with chlorine gas. Its colour is brownish-red, and it possesses an odour similar to sea plants. Its taste is acid, hot, and bitter. It does not change the colour of litmus paper; specific gravity 1·67. When dropped into water, it is decomposed, sulphur being evolved. It is composed of sulphur 2 and chlorine 4·672. By pouring bromine on flowers of sulphur, an analogous compound is formed, called bromide of sulphur. Cold water has but little action on it, but, at a boiling temperature, a slight detonation takes place, and hydrobromic acid is formed, together with sulphuric acid and sulphuretted hydrogen. It consists of bromine 10 and sulphur 2. Sulphur has the property of combining with iodine, and of forming a compound called iodide of sulphur. It is easily formed by mixing together the two constituents in a glass tube, and exposing them to sufficient heat to melt the sulphur. It is of a grayish-black colour, and has a radiated texture. It has not been analyzed. Sulphur has the property of combining with hydrogen, and of forming a gaseous compound, which has received the name of sulphuretted hydrogen. It has also been called hydrosulphuric acid. It may be obtained by pouring sulphuric or muriatic acid upon several metallic sulphurets. Sulphuret of iron is commonly employed, and may be formed by heating together iron filings and sulphur in a covered crucible. Sulphuretted hydrogen gas is colourless, and has a strong fetid smell, not unlike that of rotten eggs. It does not support combustion, nor can animals breathe it without suffocation. Its specific gravity is 1·1805. It is rapidly absorbed by water, 100 cubic inches of this liquid absorbing 308 cubic inches of sulphuretted hydrogen. The water thus impregnated is colourless, but it has the smell of the gas; and a sweetish naseous taste. It converts vegetable blue colours to red. When the gas is mixed with common air, it burns rapidly, but does not explode. When three volumes of sulphuretted hydrogen gas, and two volumes of sulphurous acid gas, both dry, are mingled over mercury, they unite together, and are condensed into a solid body, which adheres firmly to the sides of the vessel. To this compound, which possesses acid properties, the name of hydrosulphurous acid is applied. Its taste is acid and hot; and it leaves an impression in the mouth, which continues for some time. It requires a greater heat to produce fusion than sulphur. Another compound of sulphur and hydrogen, called bisulphuret of hydrogen, is formed as follows:—Carbonate of potash is fused with an excess of sulphur in a covered crucible, by which a sulphuret of potash is formed. A concentrated solution of this sulphuret is poured, by little and little, into dilute muriatic acid, which gives rise to a yellow oily-looking liquid, which collects at the bottom of the vessel. This liquid is the bisulphuret of hydrogen. It cannot be kept, for it undergoes spontaneous decomposition even in well closed vessels, being converted into sulphur and sulphuretted hydrogen. Sulphur has the property of combining with carbon, and of forming a very remarkable compound, called bisulphuret of carbon. It is formed as follows:—Fill a porcelain tube with charcoal, and make it pass through a furnace in such a way, that one end shall be considerably elevated above the other. To the lower extremity lute a wide glass tube, of such a length and shape, that its end can be plunged to the bottom of a glass bottle filled with water. To the elevated extremity lute another wide glass tube, filled with small bits of sulphur, and

secured at the further end, so that the sulphur may be pushed forward by means of a wire, without allowing the inside of the tube to communicate with the external air. Heat the porcelain tube, and, consequently, the charcoal which it contains, to redness, and continue the heat, till air bubbles cease to come from the charcoal; then push the sulphur slowly, and piece after piece, into the porcelain tube. A substance passes through the glass tube, and condenses, under the water of the bottle, into a liquid. This liquid was obtained by Lampadius in 1796, and described under the name of alcohol of sulphur. It is as transparent and colourless as water; its taste is acid, pungent, and somewhat aromatic; its smell is nauseous and fetid, though quite peculiar; specific gravity 1·27. It boils at 105°, and does not congeal when cooled down to 60°. It is one of the most volatile liquids known, and produces a greater degree of cold by its evaporation than any other substance. It takes fire in the open air, at a temperature scarcely above 620°. It is scarcely soluble in water; but alcohol and ether dissolve it readily. It is composed of sulphur 84·83, and carbon 15·17. Bisulphuret of carbon was found by Dr Brewster to exceed all fluid bodies in refractive power. In dispersive power, it exceeds every fluid substance except oil of cassia, holding an intermediate place between phosphorus and balsam of Tolu. Sulphur combines with boron, silicon, and phosphorus, and forms sulphurets of these substances.

SULPHURIC ACID, OR ACID OR OIL OF VITRIOL. This acid is now seldom or ever made by the apothecary, or even by the retail chemist and druggist, but by the manufacturing chemist. It is produced by the combustion of sulphur in large leaden chambers; the combustion is kept up by means of oxygen, which is supplied by the addition of nitre, and the volatile matter which arises is absorbed or imbibed by water, with which the bottoms of the chambers are covered. This sulphureous liquor is afterwards converted, by other processes which it undergoes, into the sulphuric acid of commerce, which is that adopted by the different colleges of the united kingdom as the sulphuric acid of their pharmacopeias. Indeed, the London college gives no formula for the manufacture of this acid, but only for that of the dilute sulphuric acid, which is as follows:—

Sulphuric acid, a fluid ounce and a half.
Distilled water, fourteen fluid ounces and a half.

Add the acid gradually to the water, and mix.

The sulphuric acid possesses an apparently oily, colourless, transparent, and dense fluidity, and is inodorous, with a corrosive, strong, acid taste. Its effects are stimulant, escharotic, and rubifacient. In its condensed form, or as sold in the shops, it is only prescribed for external use in the form of an ointment in local pains as a counter-irritant, and for this purpose is made into an ointment, by mixing with a wooden spatula one dram of the acid, and one ounce of lard. And in cases of itch, by mixing one half the quantity of acid in the same quantity of lard. Although the latter prescription will cure itch, and may be used with safety, and has less disagreeable smell than sulphur ointment, yet we caution parents against applying it to children, or such as have tender skins. We know an instance of a gentleman who, very anxious to be rid of a troublesome itch, ordered the ointment of the first strength, which indeed cured him effectually of the itch, for it not only deprived him of the diseased skin, but destroyed his bed and body linens, and dreadfully scalded and inflamed the most tender parts of the body. We give this caution as we know it is a favourite remedy with many practitioners. One dram of the undiluted acid is quite sufficient to render four ounces of lard sufficiently powerful. The sulphuric acid enters into the composition of various articles in the pharmacopeias. The diluted acid is colourless, inodorous, with a strong acid taste, and is used as a tonic and astringent, in cases of dyspepsia, colliquative sweats, and in spitting of blood, in doses of from ten to thirty drops in a glass of cold water twice or thrice a-day. It is likewise mixed with gargles in sore throats, and is used to acidify mucilaginous drinks, such as barley water, and the decoction of marsh mallows, &c.

The aromatic sulphuric acid, or aromatic elixir of vitriol, is a more elegant, although a more expensive preparation, and is made according the following formula:

Rectified spirit of wine, one pint.
Sulphuric acid, by weight, three ounces.
Bruised cinnamon bark, six drams.
Bruised ginger root, four drams.

Gradually drop the acid into the spirit, as great heat is produced by the mixture, in a bottle, and digest the mixture with a very gentle heat for three days, then add the cinnamon and ginger, and digest again for six days, and then filter through blotting paper.

The filtered liquor has a brownish red colour, an aromatic odour, and a slightly ethereal acid taste. It is indeed an imperfect ethereal spirit, with a predominancy of sulphuric acid, holding in solution the essential oils of the aromatic ingredients. It possesses the same virtues as the simple diluted acid in a higher degree, being more agreeable to the taste, and more refreshing as an acid from its ethereal combination. It is very useful in the form of mixture with the decoction of bark, in the sequel of intermittent, typhus, and scarlet fever. The dose is the same as the above, viz., from ten to thirty drops. The diluted acid coloured with coriander is often substituted for the more

expensive preparation, although the spirituous preparation may be accurately prepared at a very low price, and any family may easily prepare it. It is a very useful medicine for seamen and emigrants to warm climates.

Sulphuric acid, in its undiluted state, or even in its diluted state, in improper doses, forms a corrosive mineral poison. It produces an austere styptic taste in the mouth, a painful burning sensation in the throat, gullet, and stomach, accompanied with nausea, vomiting, and a most disagreeable fœtor of the breath. Both arterial and venous blood tinge the vomited matter, and bubbles on the spot where it falls, in the same manner as would blood rushing from the arm into a cup or bason. All the characteristic symptoms of inflammation of the bowels quickly follow, with difficult respiration, and a croupy cough. The pulse is irregular and small, and there is constant horripilatio, or a sense of creeping in different parts of the body, restlessness, and extreme anxiety, with convulsions of the face and lips, and a papulous eruption sometimes precedes death, while the patient retains the intellectual faculties while life remains.

The treatment is much the same as in cases of poisoning with nitric acid, to dilute instantly and largely with milk mixed with calcined magnesia, or soap dissolved in water, and treat the secondary or inflammatory symptoms as directed in nitric acid. There is more difficulty in discovering this poison, unless some remain in its concentrated state, than in some of the other acids. If any of the dose remains it can be readily recognized by its great specific weight, one ounce by measure weighing nearly two, and by its property of evolving heat, which it does most readily when mixed with water or spirit, as it does in the case of forming the diluted acid, or the elixir, and in these cases it is therefore ordered to be gradually dropped into the spirit or water. See *Muriatic* and *Nitric Acid*, &c.

SULPHURIC ACID, Diluted and Aromatic. These preparations are also named WHITE and RED ELIXIRS OF VITRIOL. The first is prepared by simply diluting strong sulphuric acid with water, in the proportion of one part of the acid to seven of the water, adding the acid very gradually; for if added suddenly, there is great heat generated, and the vessel in which the mixture is made might thus be broken. Aromatic sulphuric acid, or the proper elixir of vitriol, is an etherial tincture, and is prepared thus :

Take of Spirit of wine, two pounds.
Sulphuric acid, six ounces.

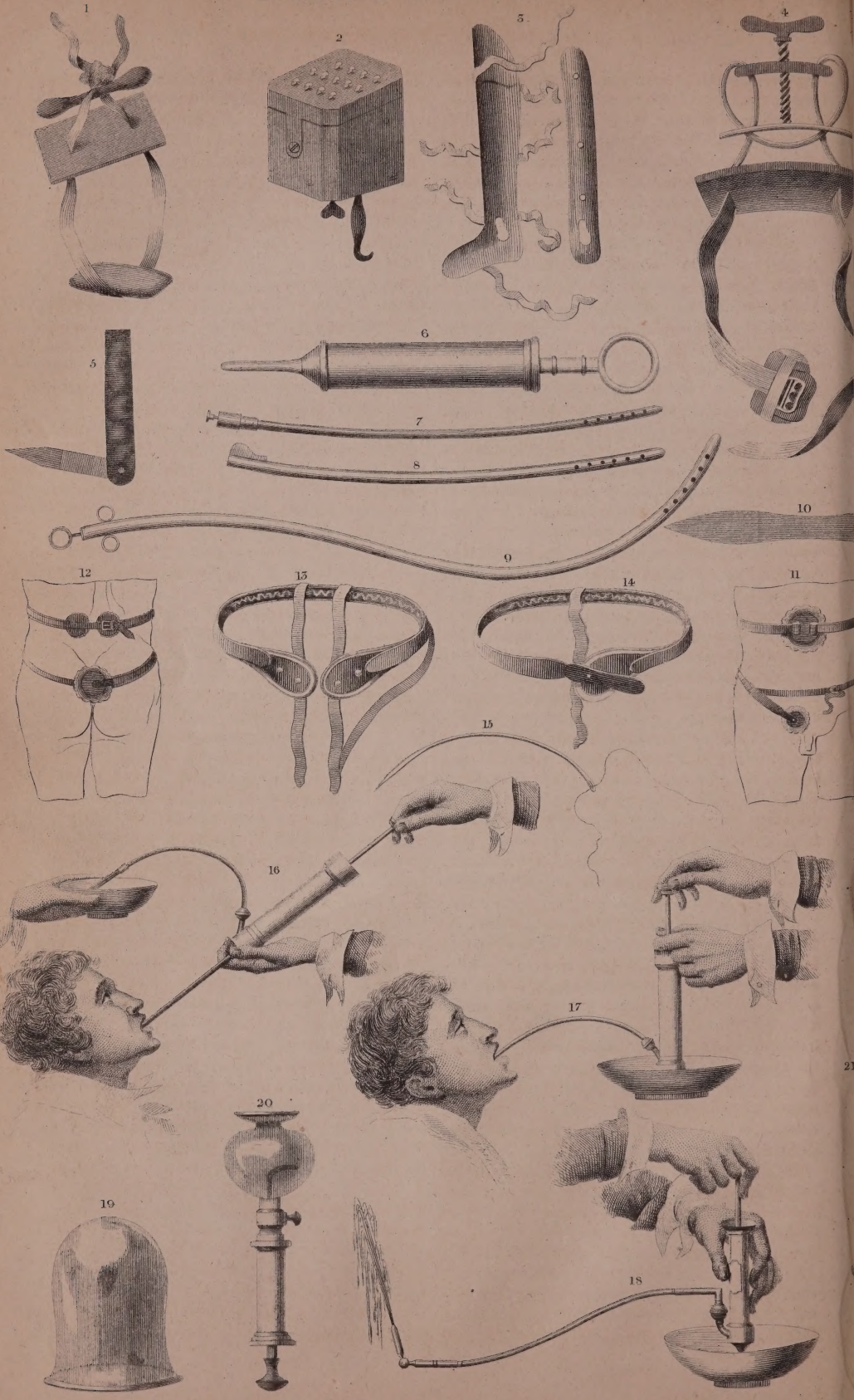
Drop the acid gradually into the spirit; then digest with a very gentle heat in a close vessel for three days, and then add one ounce and a half of bruised cinnamon, and one ounce of bruised ginger. Then digest again for six days, and filter the tincture through paper placed in a glass funnel. 'This,' says the late Dr Duncan, 'is a valuable medicine in weakness and relaxation of the stomach, and decay of constitution, particularly in those cases which proceed from irregularities, which are accompanied with slow febrile symptoms, or which follow the suppression of intermittents. It frequently succeeds after bitters and aromatics by themselves have availed nothing; and, indeed, great part of its virtues depend on the sulphuric acid, which simply diluted with water, (the first preparation mentioned in this article,) has nearly equal powers.'

Both these preparations are useful additions to the infusions of cinchona and other bitters: first, as covering their disagreeable taste; but principally as rendering their active principles, such as cinchona and quinia, &c. more soluble in water. Either of these preparations may be given in doses of from ten to twenty drops, two or three times a day, in a little water.

SUPPER is the evening refreshment, or the last meal, which is usually taken shortly before retiring to rest. Since late dinners have, within these few years, become fashionable, suppers are in a great measure relinquished; but, as many persons still retain the latter practice, it should be remarked, that all flatulent and heavy food ought to be avoided; for, as digestion is more slowly effected during sleep, the stomach will become oppressed, and the person will be often troubled with nausea, eructations, accompanied with headach, &c. in the morning, consequent on excess in eating. Where, however, a healthy person is obliged to labour at the desk, or in any other sedentary manner, during the greater part of the night, it will be advisable to take a slight repast, such as bread pudding, water gruel, or milk with biscuit, toasted bread, and the like, at least one or two hours previous to bed-time. To convalescents, it may, under certain circumstances, be allowable to eat an egg, or partake of a few oysters, which afford more solid nutriment than any of the dishes before mentioned; provided they agree with their digestive organs.

SUPPOSITORIES. Medicinal substances prepared in the form of a soft pill or bolus, for the purpose of being put into the rectum, and there allowed to dissolve gradually and produce their effects. Suppositories are generally either laxative or sedative preparations; the laxative are seldom used except in children, and the most usual is common soap. Opiate or sedative suppositories are most valuable remedies in cases where the stomach will not bear medicine exhibited in the usual manner, and also in cases of inflammation or irritation about the neck of the bladder or lower part of the bowels. The best form of opiate suppository is composed of extract of henbane and opium, in quantities pro-

SURGICAL INSTRUMENTS



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portioned to the age of the patient and state of the particular case, say eight or ten grains of henbane, and two of opium, for an adult. Where the solid form is found to give rise to irritation, as in some cases of disease of the gut, small starch injections containing the solution of morphia, or some other opiate preparation, should be used instead of the suppository.

SUPPURATION. Suppuration, or as it is termed in Scotland, bealing, signifies the secretion of purulent matter or pus, and is one of the terminations of inflammation. This termination of inflammatory action in any tissue is generally preceded by rigors or shivering, and a burning throbbing pain in the part; in general, lymph is effused into the surrounding parts, consolidating the cellular tissue so as to limit the effusion of pus, thus forming what is called a circumscribed purulent depot, or abscess; but in some cases, as in bad cases of erysipelas, the pus, generally of a bad or acrid character, is diffused through the cellular tissue of the parts, constituting what is called diffused cellular infiltration. At one time pus was supposed to be formed from the liquified solids of the diseased part, and to be of an acrid destructive nature; but experience has disproved this, and shown that the loss of substance of the neighbouring parts, and caries of neighbouring bones, &c. are owing to absorption caused by the pressure of the pus, and not by any corrosive property it possesses.

SURFEIT, in medicine, means an indisposition attended with nausea, and the sensation of a load at the stomach, which are generally occasioned by indolence, and excess in eating or drinking; though the disease sometimes arises from an error in the quality of the diet. During this affection, the insensible perspiration is impeded, and the skin is often covered with eruptions.

If a surfeit originate from the use of shell-fish, corrupted meat, or other unwholesome animal food, it will be advisable speedily to resort to an emetic; and after its operation, to drink frequent and copious draughts of vegetable acids, diluted with water. But, in cases where excess in eating or drinking is the immediate cause of the complaint, the bowels ought to be evacuated by proper purgatives, and afterwards such medicines administered as tend to restore the obstructed perspiration, and at the same time promote the secretion of the urine.

SURGICAL INSTRUMENTS. Under this head we mean to treat, very briefly, of the few surgical instruments which are used by the domestic practitioner. These are, 1. The common bleeding lancet, represented in fig. 5. Plate IX. In choosing a lancet, one that is not very spear-pointed is preferable; after using it for bleeding it should be carefully wiped, and care taken that it is properly closed before returning it to the lancet case, otherwise the edge might project beyond the shells and be injured. The method of using this instrument will be found detailed under the article *Bleeding*. The instrument is represented in our plate as prepared for use. 2. The cupping apparatus, composed of the scarificator, fig. 2. cupping glass, fig. 19. and a small spirit lamp to exhaust the glass. The *scarificator* is an instrument moved with springs, and containing from four to twenty lancets, or more, according to the nature of the part to which it is applied, or the quantity of blood it is intended to draw away. A well constructed scarificator, (and the instrument has of late been greatly improved,) should be capable of being regulated so as the lancets will only penetrate to such a depth as may be required; and there is considerable art and dexterity required in the performance of this little operation; so much so, as to have now rendered it a separate branch of surgery in cities and great towns. As there is, however, little danger attendant on the operation, and it is one any person with a few lessons may easily practise, if not with all the dexterity and address of a professional cupper, yet sufficiently well for all practical purposes, we think it a branch of popular or domestic surgery worthy of being cultivated; indeed, a few lessons from an expert operator, will render any intelligent person competent to the performance of the operation in the more ordinary parts of the body in which it is employed. Previous to the application of the scarificator, the cup or cups are sometimes applied to the part, to draw blood in greater abundance to the cuticular vessels. The lancets are so placed in the scarificator, that they may be made to cut in two directions. They must be promptly raised during the transition of the lancets from the one side to the other, to allow them to move freely round; and they should never be set to strike too deep, as they then completely divide the skin and reach the cellular tissue, the blood vessels of which are not so large and numerous, and, when wounded, pour their contents into the cells. The scarificator being set, or its lancets set to strike to the depth required, and the instrument cocked by drawing back a lever on the upper side, it is placed on the part by the slits downwards, and is discharged by pressing the nut of the spring when the lancets make the incisions; and in some cases it is necessary to strike twice with the scarificator, crossing the wounds made by the first stroke. The air in the cupping glass is then to be exhausted, by introducing the flame of the spirit lamp, or by burning a little tow or paper in the glass, and applying it firmly and quickly above the wounds made by the scarificator; the cup will adhere, and blood will flow from the incisions; or a syringe or stomach pump, in other words, a simple air pump, may be affixed to the cupping glass, which is made

for this purpose, and by placing the mouth of the cup over the incisions, and working the pump or syringe, the cup will firmly adhere, and soon be filled with blood. (An example will be seen in fig. 20. which, however, is also the form of an instrument for emptying the female breast.) Sometimes there is a cistern attached to the lower part of the cupping glass, to contain the blood, but in most cases it is not necessary. When the cup is full, it may be removed, emptied, and again applied. In either of these ways, a considerable quantity of blood may be obtained. When the requisite quantity has been withdrawn, the part may be washed, and dried, and some simple dressing, such as spermaceti ointment, spread on a linen rag or caddis applied. Cupping is a most valuable remedy in many diseases, and in a great variety of cases preferable to leeches, especially in affections of the spine and joints, while it is neither a tedious or painful operation. 3. The *tourniquet*, an instrument employed by surgeons in arresting dangerous hæmorrhage, of which there are two descriptions represented in our Plate, (figs. 1 and 4); the first used in cases of amputation, to prevent the discharge of blood during that operation, consists of a brass screw of considerable power, a bandage and small pad or cushion, resembling a small pin cushion and buckle. The bandage is from an inch to two inches in width, according as it may be required, in greater or less extremities, and the size of the other parts are reduced accordingly. (See it applied to the thigh, in woodcut accompanying the article *Tourniquet.*) The more simple *tourniquet* is called a *field tourniquet*, (fig. 1,) because it is carried to the field of battle not only by the surgeons and assistant surgeons, each of whom are supplied with a number of these instruments, but likewise by officers, and occasionally even private soldiers, who, by a prompt application of this simple instrument, have saved their own lives or those of their wounded companions. The field tourniquet consists of a small turned wood handle, often about four or five inches in length, sometimes a small pad and piece of thick leather about the size of a crown piece, and a bandage about an inch or an inch and a quarter in width. This bandage is placed round the wounded limb, about an inch or two above the wound, and tied. The handle is then turned round over above the piece of leather, with a compress below it, immediately in the line of the bleeding vessel, which may be discovered by observing that part of the limb from which the bleeding proceeds, and by the turning the handle the bandage is tightened and kept in its position in the same way as carriers or carmen secure the rackpins of their loaded carts or waggons.

An attentive reader and observer will perceive, from the woodcut already referred to, that the mode in which the screw tourniquet is applied is somewhat similar, only the screw is employed to tighten and retain the bandage in its proper state in place of the wooden handle employed in the other case. In many cases, however, of accidents of the extremities (for it is to the extremities that the tourniquet is chiefly applied) neither of these useful instruments are to be procured in time, and the patient dies of hæmorrhage. A substitute is, however, in general easily procured, and any individual who is at hand may entirely suppress, or at any rate greatly moderate the discharge of blood, till a surgeon arrives either to amputate the limb or tie the bleeding vessel; for oftentimes the wound is so extensive as to require almost immediate amputation. Let a stout handkerchief, or a brace or suspender, which is generally made of stout cotton or silk web, be tied firmly about an inch and a half above the wound, and as we have marked the position of the larger arteries in the arm, leg, or thigh, in the Plate of the blood vessels, the part most proper for making the pressure may be easily understood. When an artery is wounded it is easily to be distinguished, as the blood flows out by jirks, and not in the slow, continued stream, as from a vein, and the arterial blood is of a bright red colour, while the venous is darker If one of the large arteries of the thigh is wounded more than halfway up, it will require a much greater force to stop the bleeding than if lower down, or even in the leg or arm; but the same rule is applicable to all cases of great hæmorrhage from the blood vessels of the lower and upper extremities.

On this point we feel a deep interest, as we have known more than one or two instances of persons bleeding to death from even what appeared to be trifling wounds of the wrist or ankle, and which any boy, or indeed girl, or the patients themselves, might with a knowledge of the above rules easily have checked. Figs. 7 and 8 represent the usual forms of female catheters, for emptying the bladder in cases of retention of urine; and fig. 9 represents the usual form of the male catheter, used for a similar purpose. The method of using these instruments has been particularly described in our article on *Catheterism.* Fig. 10 is the common seton needle. Fig. 3 represents the splints used in fractures of the legs. Fig. 6 is a small syringe employed for injecting fluids into the urethra, or for syringing the ears to remove hardened wax; it is also of use for administering enemata to infants. Figs. 13 and 14 represent double and single hernia trusses, and the method of their application is represented in figs. 11 and 12. Fig. 15 is the usual form of the common suture needle for stitching wounds. Fig. 17 represents the method of throwing fluid into the stomach by means of the stomach pump; whilst

fig. 16 represents the same instrument applied so as to remove liquids from the stomach. The operation of using the stomach pump is very simple, and a few lessons might enable any person possessed of ordinary dexterity to dilute and remove poisons from the stomach in cases of emergency, as represented in the Plate. Fig. 18 shows the method of using the self-injecting enema syringe. Fig. 20 is the breast glass and exhausting pump used to remove the milk from the breast; this apparatus, as already mentioned, may also be used in cupping instead of the ordinary glass and spirit lamp. Fig. 21 represents the probang, an instrument formed of a piece of whale-bone, mounted with a sponge, or an ivory ball, for the purpose of pushing down foreign bodies which may have stuck in the gullet. In a case of emergency, where the foreign body is beyond the reach of the finger, which is rarely the case, a very good probang may be formed of the whalebone rib of an umbrella or parasol, or even of a piece of thin cane.

SUSPENDED ANIMATION. The temporary cessation, or at least apparent cessation, of the vital functions. For the means to be used in such cases we refer our readers to the articles on *Resuscitation*, *Carbonic Acid Gas*, *Drowning*, &c.

SUTURES. The technical term used in surgery for stitches, employed for the purpose of keeping divided parts in accurate contact. A great many different kinds of sutures were formerly in use, but in the present day the only methods adopted are the twisted, interrupted, and dry sutures. The twisted suture is made as follows: the divided parts being brought into accurate apposition, a needle, having its eyed end covered with sealing wax, is introduced from without inwards, and carried out through the opposite side of the wound to the same distance from the edge that it entered at the former side; a waxed silk thread is then wound round it two or three times, so as to form the figure 8, by which the divided parts are gently drawn into accurate contact.

The interrupted or knotted suture consists in several separate stitches made at a distance from each other (whence the name,) along the track of a wound. The dry suture is an old name given to the methodical application of adhesive plasters when used to unite divided surfaces.

In anatomy, suture means that species of junction of bones which is effected by means of dentated margins, dovetailing the bones together, as in the bones of the cranium.

SWALLOWING. See *Deglutition*.

SWALLOW-WORT OR TAME POISON, or the *Asclepias Vincentoxicum* of Linnæus. The root of this plant, which is the part used, derives its name from two Latin words, *vineo*, to overcome, and *toxicum*, poison, from its once supposed virtues of resisting and expelling poisons. It may not, however, be improper at the same time to state, that it was reckoned by some botanists a species of apocynium or dogsbane, from all the poisonous sorts of which it may be distinguished by yielding a limpid juice, whilst that of the others is milky; and that although a native of the warmer climates it is cultivated in Britain, (but rarely perfects its seed,) which renders this notice the more necessary. The root, when fresh, smells somewhat of valerian; when chewed, it imparts at first a considerable sweetness, which is succeeded by an unpleasant subacrial bitterishness. In the formulary of the French hospitals it is classed among diaphoretics, and acts as such in small doses, but in larger ones is emetic and purgative. Internally, the dose of the powder is from sixteen grains to half a dram. It is also employed in the form of decoction: one ounce of the root to a pint of water. Although not much used at present, it is evidently an article of considerable powers, and was formerly employed internally in the case of glandular disease, and we have no doubt it deserves greater attention.

SWEAT, a perceptible moisture, issuing from the pores of the skin, either in consequence of too violent exercise, or from the action of certain medicines, which are hence called sudorifics; though it is sometimes occasioned by great debility of the cutaneous vessels, when it is denominated a cold sweat.

Sweats seldom occur in healthy individuals, excepting from some defect or mismanagement of their diet, regimen, &c. If excessive, they are always hurtful, on account of their drying and weakening the body; depriving the humours of their aqueous parts; and disposing the system to inflammatory diseases. In certain cases, however, when artificially excited, such secretion is productive of beneficial effects, as in palsy, rheumatism, dropsy, and other chronic complaints. Sometimes sweats are critical, in particular disorders; nature exerting herself, by the outlets of the skin, to discharge morbid matter. In these, and indeed in all such instances as are not attended with dangerous symptoms, they ought to be promoted; and on no account to be suddenly or rashly suppressed; for headachs, cutaneous eruptions, catarrhs, together with inflammations, and numerous other affections, are frequently induced by neglecting this salutary evacuation.

SWEATING SICKNESS. A febrile epidemic disease, of extraordinary malignity, which prevailed in England, at different periods, towards the end of the fifteenth century and the beginning of the sixteenth, and spread very extensively in the neighbouring countries, and on the continent. It appears to have spared no age nor condition, but to have attacked more particularly persons in high health, of middle age, and of the better class. Its attack was

very sudden, producing a sensation of intense heat in some particular part, which afterwards overspread the whole body, and was followed by profuse sweating, attended with insatiable thirst, restlessness, headache, delirium, nausea, and an irresistible propensity to sleep, together with great prostration of strength. The patient was frequently carried off in one, two or three hours from the eruption of the sweat. It seems to have first appeared in the army of the earl of Richmond, upon his landing at Milford Haven, in 1485, and soon spread to London. This body of troops had been much crowded in transport vessels, and was described by Philip de Comines as the most wretched that he had ever beheld, collected probably from jails and hospitals, and buried in filth. It broke out in England four times after this, in 1506, 1517, 1528, and 1551. The process eventually adopted for its cure, was to promote perspiration, and carefully avoid exposure to cold. The violence of the attack generally subsided in fifteen hours; yet the patient was not out of danger under twenty-four hours.

SWEET SPIRIT OF NITRE. *History and synonymes.* Spirit of nitric ether was known to Raymond Ludley in the thirteenth century. Basil Valentine, in the fifteenth century, taught an improved method of obtaining it. It has been known by various names, such as sweet spirit of nitre (*spiritus nitri dulcis*), spirit of nitrous ether (*spiritus ætheris nitrosi*), and nitre drops. Nitric ether was first mentioned by Hunkel in 1681.

Preparation. The following directions for its preparation are given in the London pharmacopœia:—Take of rectified spirit three pounds, nitric acid four ounces. Add the acid gradually to the spirit, and mix; then let thirty-two fluid ounces distil. At Apothecaries' Hall, London, it is prepared in an earthenware still, (heated by the slow application of steam to its outer surface,) with a condensing worm of the same material. It should be slowly distilled at a temperature of about 180° Fah.

Properties. Spirit of nitric ether is a colourless limpid liquid, having a fragrant etherial odour, somewhat resembling that of ripe apples, and a pungent, aromatic, sweetish, acidulous taste. Its specific gravity should not exceed 0.834. It is very volatile, producing a considerable degree of cold by its evaporation. It is very inflammable, and burns with a whitish flame. By keeping, it becomes powerfully acid, and then strongly reddens litmus, and produces effervescence with the alkaline carbonates. It dissolves in alcohol and water in all proportions.

Characteristics. It is principally distinguished by its peculiar odour, its inflammability, its lightness, and its miscibility with water. The spirit of nitric ether of the shops usually strike a deep olive colour with the protosulphate of iron, thereby indicating the presence of binoxide of nitrogen, and produces, with tincture of guiacum, a blue tint, which passes through various shades of green. This last effect probably depends on the presence of nitrous or nitric acid. These effects are not invariably produced; as when spirit of nitric ether has been long kept, though it may still possess the proper odour.

Purity. This compound is most extensively adulterated by mixing it with rectified spirit and water. The fraud is detected by an attentive examination of the flavour of this substance, and by taking the specific gravity of the liquid. If the specific gravity exceed 0.834, the presence of water may be suspected. Nitric or nitrous acid may be suspected if the liquid possesses the power of strongly reddening litmus, and of causing effervescence with the alkaline carbonates.

Physiological effects. Its effects on vegetables have not been ascertained. We are not acquainted with any experiments made to determine its effects on animals generally. Veterinary surgeons employ it as a diuretic on various occasions, and as a stimulant in the advanced stages of fever to rouse the exhausted powers of horses. On man its effects have not been satisfactorily ascertained. The inhalation of its vapour is dangerous when too long continued, and in one instance has proved fatal. Taken internally in moderate doses it acts as a diuretic. It is believed to possess diaphoretic properties. By some physicians it is described as being refrigerant, a quality which it probably owes to the free acid which it usually contains. We are not acquainted with the effects of large doses, but they are probably analagous to, though less energetic than, those of other ethereal compounds. A celebrated continental physician relates a case of a boy twelve years of age who took a drachm in the morning fasting, and that it caused violent colic which lasted for six hours, and was accompanied with vomiting. It is very likely that these effects arose from the preparation containing a considerable quantity of free acid.

Uses. It is employed as a diuretic in some disorders of children and in mild dropsical complaints, as in the dropsy which follows scarlet fever. It is administered in conjunction with squills, acetate or nitrate of potash, or foxglove. As a refrigerant and diaphoretic it is used in febrile complaints in combination with the acetate of ammonia and tartar emetic. As a carminative it is frequently employed to relieve flatulence and allay nausea. On account of its volatility it may be applied to produce cold by its evaporation.

Administration. The usual dose of this liquid in febrile cases is about half a drachm. When we wish it to act as a diuretic it should

be exhibited in large doses, as two or three teaspoonfuls.

SWELLED LEG. In puerperal women, the swelling of the inferior extremity is generally preceded by symptoms of irritation of the womb, and a tender state of the parts within the pelvis. About fourteen days after delivery, sometimes sooner, and in some cases as late as the fifth week, the patient complains of pain in the lower part of the belly, which is increased by pressure, and occasionally there is pain and difficulty in making water. The uterine region is slightly swelled, the pulse is increased in frequency, the skin hot, and the patient complains much of thirst. These symptoms are frequently preceded by shivering. Stiffness and pain are now felt in one of the groins, and the pain is accompanied with swelling. These two symptoms may proceed gradually down the limb, but more frequently pain is felt suddenly in the calf of the leg, or at the knee, which also darts down to the heel. Within twenty-four hours after the pain is felt, the limb swells, and becomes tense. It is hot but not red; it is rather pale and somewhat shining. The swelling sometimes proceeds from the groin downwards; in other cases, it is first felt about the calf of the leg, and proceeds upwards. In general it procures an abatement of the pain, but does not remove it. On the contrary, the patient cannot move the leg, and it is tender to the touch. The inability to move it, however, does not depend entirely on the pain, but also on a want of command over the muscles. The pulse is very frequent, being often 140 in the minute, and generally is small and feeble, but sharp; the tongue is white and moist, the countenance has a pale appearance, the thirst is considerable, the appetite is impaired; the bowels are either bound, and the stools clay-coloured, or they are loose, and the stools very fetid or bilious. The urine is muddy; the lochial discharge sometimes stops, or becomes fetid; in other cases it is not at all affected. The nights are spent without sleep, and the patient perspires profusely. All the parts within the pelvis are tender, and the mouth of the womb is open, but not more painful when touched than the sides of the vagina or the internal muscles.

The period at which the swelling reaches its height is various, but it frequently takes place in twenty-four or forty-eight hours. It seldom makes the limb above double its usual size. Generally in ten days, sometimes in even two or three, the febrile symptoms, swelling, &c. abate; but they may be more protracted, and they rarely go off entirely for a length of time. When they go off, the patient is left feeble, and the limb stiff, weak, and occasionally, for some time, powerless. In the course of the cure, we frequently feel hard bumps in different parts of the limb, particularly on its back and inside. These are not glands; some consider them as indurated lymph, others as muscular contractions. At the top of the thigh, the inguinal glands are often felt swelled, even at the commencement of the complaint; but in some cases, they are not at all affected. If the skin be punctured no serum is effused, at least, not in the same way as in anasarca, and the swelling is not increased in a depending posture.

In some cases, the disease commences like rheumatism, affecting the back and hip-joint. Then the upper part of the thigh becomes painful and swelled, and next the calf of the leg suffers; sometimes the limb at first feels colder than the other. Occasionally the disease is very mild, and attended with little swelling. This is more apt to be the case when it is late of occurring, and is vigorously attacked at first.

In some instances, the patient has been sensible of the pain which expelled the child, rushing violently down the leg. After a short time it has abated, but about the usual period this disease has appeared. In one or two instances suppuration has taken place. Mortification has also occurred.

If the disease run its usual course, it is always a considerable length of time before the patient recover, for the swelling does not soon entirely disappear, and the strength is long of returning. In some instances, the limb remains permanently swelled and feeble.

After one leg has been affected, and even before the complaint has completed its course there, the other may become diseased; and this has no influence on the progress of the first. The second attack is sometimes the worse of the two, owing, perhaps, to the previous debility. A coldness is often felt in the second leg, before the paroxysm comes on, and pain in the belly precedes the attack. The first leg may be a second time attacked. In one instance, both of the inferior and of the superior extremities, were successively attacked. The affection of the arm was preceded by pain, feeling of weight, and swelling of the lateral part of the chest and back. In this case the patient, after some uterine hemorrhages, had a severe attack of inflammation of the womb, which required bleeding, and which yielded completely to this method of treatment. In a day or two afterwards this disease took place.

This is not generally a fatal disease, but it is tedious, and is frequently accompanied with hectic symptoms. Death, however, may be caused by suppuration or gangrene; or by exhaustion, proceeding from the violence of the constitutional disease; or from exertion made by the patient, which has sometimes proved suddenly fatal.

The production of this disease does not seem

to depend on the circumstances of the labour, for it appears both after easy and difficult deliveries. Those who give suck, and those who do not, the strong and the weak, are affected by it. But if it be late of occurring, it is generally in those who have suffered from abscess forming in the breast. It has succeeded an abortion, or suppression of urine, and a slight degree of it has followed pain of the belly, attendant on menstruation, and been repeated for one or two periods

We seldom can discover any apparent exciting cause, but when we can, it is generally cold; standing, for instance, on a cold or damp floor. Some physicians are inclined to consider the cause to be an irritated or slightly inflamed state of the parts within the pelvis, which sometimes produces merely a stiffness and swelling in the region of the groin, sometimes an irritation of the nerves which pass to the leg. Some continental physicians regard the disease as proceeding from a depot of the milk. Until lately, most modern writers attributed it to an affection of the lymphatics, which are ruptured, or have their circulation impeded by swelling of the inguinal glands. Dr. Hull considers the disease as an inflammatory affection, suddenly succeeded by effusion. According to Professor Burns this disease seems to consist partly in inflammation, and partly in nervous irritation, producing both pain and a temporary species of palsy. In treating the disease, according to the same author, we must lessen the one, and allay the other, in order to effect a cure.

Dr Davis, professor of midwifery in University College, London, was the first who discovered the true pathology of the disease. He showed that this disease always arose from inflammation of the iliac veins.

The treatment naturally divides itself into that of the limb and that of the constitution.

Our first object is to check the disease within the pelvis. With this view, leeches ought to be applied to the groin, after which we ought immediately to prescribe a purgative. A small blister should then be applied to the groin, or mustard poultices may be applied to the groin, inside of the thigh, and near the knee or the leg, and afterwards cloths, wet with warm solution of acetate of lead, or with tepid vinegar. By these means the swelling may be prevented or rendered milder. Gentle friction with warm oil, anodyne balsam, or camphorated oil, will be highly advantageous, and should be frequently repeated if the disease have already taken place in the limb. Fomentations occasionally give relief, but sometimes are rather disagreeable. The bowels should be kept regular, but purging is to be avoided. Opiates are frequently found useful to allay irritation. When the acute symptoms have subsided, we should endeavour to remove the swelling, and restore the tone of the part by friction with camphorated spirits, and the use of the flesh brush. Much benefit frequently results from the application of a roller round the limb. In many cases, the free use of solution of cream of tartar is of great service. If the disease appear to be lingering, small blisters may be applied to the groin, and other parts of the limb. If much weakness of the limb remain, the use of the cold bath will be found highly useful, or sometimes a bath of warm sea-water may be ordered with equal benefit.

Besides these means, we must also exhibit remedies for lessening the fever and constitutional affection. In the first place, we administer saline draughts, but these should not be often repeated, and are never to be given so as to produce perspiration. In a short time these remedies should be exchanged for bark, diluted sulphuric acid, and opiates, which contribute to diminish the irritability. In the last stage, it is necessary to administer a moderate quantity of wine. When the pain shifts like rheumatism, the exhibition of bark, and small doses of calomel, will be attended with advantage. If the discharge from the womb be fetid, it will be necessary to inject warm water, or an infusion of camomile flowers, into the vagina. During the first stage of recovery, exposure to cold has frequently produced a relapse. From what we have already said it will appear evident that the treatment principally consists in palliating symptoms, and supporting the strength of the patient. The diet should be light and nutritious. In conclusion, we have only to state that we cannot agree with those physicians who, in the very commencement of the disease, order wine liberally, as at that period there certainly does exist a tendency to inflammation.

SWELLINGS are of different kinds, either of the whole body, or of particular parts, or local and circumscribed. In general dropsy the whole body is affected with watery swellings, and in the beginning of the same disease partial swelling, as of the lower extremities, or of the arms or face, occur, according to the position in which the body is placed. In persons of a scrofulous constitution circumscribed swellings take place in different glands, but principally in those of the neck, arm-pit, or groins. These glands likewise frequently become swollen in consequence of being attacked with inflammation, which is generally caused by exposure to cold. In sore throat, an affection very common in this climate, the tonsils become swollen, and produce a fulness of the external parts of the throat. The cheeks also frequently swell from gum-boils occurring during toothach. We have an instance of a still more permanent swelling in the bronchocele, or goitre, an affection which chiefly attacks the inhabitants of mountainous districts. When rose attacks any part of the

body, such as the face, head, or extremities, these parts become very much swollen. With regard to the treatment of these different swellings, that must vary according to the severity of the symptoms, the age and constitution of the patient, and likewise the causes of the disease.

SWIETANIA BARK, OR THE FEBRIFUGE SWIETANIA BARK, or the *Swietania Febrifuga.* This bark is imported from the East Indies; it is covered with a rough gray cuticle, internally red; and is brittle and compact, having a bitter taste and an aromatic odour. It has been used as a substitute for the cinchona or Peruvian bark, but it contains no cinchona. It is, however, stomachic and tonic, and employed in other diseases in which bitter tonics are useful. Its dose in substance, in the form of powder, is from one scruple to two, twice or thrice a day. It may be prepared in the form of infusion, or tincture, in the same proportions as those preparations of cinchona (which see), but the decoction is an improper preparation, as the boiling dissipates the aromatic odour.

SWINE-POX. A popular name for one of the varieties of chicken-pox. This disease, like the small-pox, seems to depend upon a specific contagion, and afflicts a person but once during life.

The eruption is generally proceeded by chillness, succeeded by flushings and heat, pains in the head and back, thirst, restlessness, and a quick pulse; but at other times no such symptoms are present. About the second or third day the pustules become filled with a watery fluid, which is soon converted into yellow matter, as in the small-pox (to the milder species of which it seems, however, to bear some affinity); and about the fifth day they usually dry away, and are formed into crusts or scabs. No danger ever attends the swine-pox.

The small-pox and swine-pox differ in the eruption of the former being preceded by a fever of a certain duration, while that of the latter is either preceded by none, or one of uncertain continuance, in the vesicles appearing much earlier in the swine-pox than in the small-pox, and about the second or third day being filled with serum; in the matter of the former never acquiring the purulent appearance, which it always does in the distinct small-pox; and in the crusts which cover the pustules being formed about the fifth day, at which time those of the small-pox are not at the height of their suppuration.

These distinguishing marks it will be necessary to attend to, as there is great reason to suppose the swine-pox has not only been sometimes mistaken for small-pox, but that its matter has been used for that of small-pox in inoculation, to which may be ascribed many of the supposed cases of small-pox having appeared a second time in the same person. In general it is only necessary to make use of a spare regimen on the first appearance of the eruption, and to administer one or two cooling purgatives afterwards; but should the febrile symptoms run high, it may then be advisable to make the patient take frequent small doses of some antimonial, with saline draughts and nitre, drinking freely at the same time of cold diluting liquors, and keeping the bowels open with gentle laxatives or emollient clysters.

SYMPATHY, in physiology, is that quality of the animal organization, by which, through the increased or diminished activity of one organ, that of others is also increased or diminished. The idea of an organized system—the union of many parts in one whole, in which all these parts correspond to each other—includes the idea of a mutual operation, of which sympathy is a part. The medium between the organ from which the action proceeds and that to which it extends, has been sometimes supposed to be the nervous system, sometimes the vascular or the cellular system, or the juices; and it cannot be denied, that, in some sympathetic phenomena the nerves and the vessels appear to be the media; but there are objections to considering them as the cause of sympathy in general, for experience teaches, that sympathy takes place also between such organs as have no discoverable connection by nerves or vessels. The phenomenon of sympathy appears even in the healthy body; *e. g.* a strong light, thrown upon the eye, sometimes produces sneezing; tickling causes laughing, and some physiologists have even called the change of voice at the age of puberty, and the increased secretions of the liver, the salivary glands, the pancreas, and the coats of the stomach at the time of digestion, a sympathetic action. But the effect of sympathy is much more often observed in diseases. There is hardly one in which some phenomena are not to be explained by sympathy. *Sympathy* is further used to express the influence of the state of one individual upon another, *e. g.* the tickling in the throat, caused by the cough of another person; or the yawning produced by seeing another yawn; or the sorrow produced by witnessing his grief. The effects of animal magnetism are also ascribed to sympathy, and those which the sight of some animals is said to have upon some men.

SYNCOPE, in physiology and medicine, fainting; a considerable diminution or complete interruption of the motion of the heart and of the function of respiration, accompanied by a suspension of action in the brain, and consequent temporary loss of sensation, volition, and the other faculties, of which the brain is the organ. It takes place from a variety of causes, some of an exciting, others of a depressing

nature. It is familiar to hypochondriac and hysteric persons, and may be brought on in all those who have much mobility of nerves by any sudden or violent emotion, or even strong sensation. It is a very usual consequence of violent pain, such as that which accompanies a surgical operation. Women are more prone to fainting than men, in consequence of greater susceptibility to impressions made on the nervous system. But we find, even among men, frequent peculiarities of constitution, which, notwithstanding general strength of frame, dispose them to faint, from causes which appear slight, such as certain odours, the sight of blood, a wound or sore, the presence of a cat, mouse, or spider, or other objects for which a person has conceived an unaccountable aversion. Sometimes the cause is to be found in disturbed digestion, worms, and other irritations acting upon the nerves of the stomach or intestines. Other causes act more directly on the circulation, as the sudden depletion of the blood-vessels by hæmorrhage, or by large evacuations of any kind, such as purging, vomiting, or even sweating. The removal of fluids which have collected in any part of the body, such as the hydropic water in ascites, or the matter of a large abscess, is often followed by fainting. Causes which suddenly diminish the supply of blood to the head, tend peculiarly to produce it in those who are disposed to it. This sometimes happens from rising suddenly from the horizontal position, and stretching out the arms towards an object placed above the head, as in reaching a book from a high shelf in a library. Fainting sometimes marks the invasion of acute diseases, and is sometimes a symptom of some mechanical obstruction to the circulation from organic affections of the heart or of the large vessels in its vicinity. The recovery of the patient from the actual fit, is, in general, easily effected, by merely placing him in a horizontal position, dashing cold water on the face and hands, or chafing the temples with stimulant ammoniacal liquids; which may also be held to the nostrils when the breathing is not entirely suspended. If the fit is of long continuance, it is proper to employ the same means as are used for the recovery of drowned persons. Frequent fainting, especially if it be found to observe certain periods, or to occur more particularly upon waking in the morning, is a mode in which epilepsy very often commences; and when this is suspected, no time should be lost in applying the proper remedies.

SYNOVIA. A clear colourless and somewhat viscid fluid secreted by the lining membrane of joints, for the purpose of obviating the effects of friction and allowing of more easy and free motion of the parts. In some cases of chronic inflammation of the joints this fluid is secreted in larger quantity than usual, and is also changed in appearance, becoming thinner than when healthy, and giving rise to swelling of the joint, or dropsy of the joint, as this disease is termed.

The treatment consists in repeated blistering, frictions with iodine, and stimulating liniments and methodical bandaging of the limb.

SYPHILIS. The name now most frequently used for the venereal disease, which is thus called in a very fine poem, written in Latin hexameters, by the Italian Fracastorio (first printed in Venice, 1530, 4to.) The history of this disease is one of the most difficult parts of the history of medicine. It is uncertain whether that violent and truly epidemic disorder of the skin, which appeared in the last ten years of the fifteenth century, was really what we now call syphilis, or not rather a variety of the leprosy, which soon after entirely disappeared. Towards the end of the fifteenth and at the beginning of the sixteenth century, a disease, till then unknown, appeared in Europe, and which, by its rapid extension, its horrible consequences, its great contagiousness, the inefficacy of all the remedies employed against it, perplexed the physicians, and excited a general horror. Respecting its origin, nothing certain is known. The physicians of that time were, generally speaking, too ignorant to investigate the origin of a disease which they were but rarely able to cure. Until lately, it was pretty generally believed that this malady was carried by the vessels of Columbus from America to Europe; but the most accurate examination of this opinion shows its incorrectness. The first author who expresses this opinion was a physician of Nuremberg (Germany), of the name of Leonhard Schmauss, in 1518: he founded his opinion upon the fact that the Guaja wood, which had been introduced from America in the meantime, had become known as a good remedy for the disease; for, said he, nature always provides an antidote in the vicinity of a poison. The principal support which his opinion received was from the testimony of the son of Columbus, and his successor Oviedo; but the first speaks only of a disease like scald head, said to predominate in St Domingo; and the other, a tyrant like most of the Spaniards in America at that period, delights in representing his nation as the favourite people of God, and the Americans as cursed. A careful inquiry shows only that the crew of Columbus brought a contagious disease with them, which destroyed the greater part of their number, and communicated itself to those who had intercourse with them. This is easily explained by the imperfect care taken of the health of such a crew, and the uncommon hardships of such a voyage in those times. At all events, their complaint was not the venereal disease, as this broke out almost at the same moment, in the summer of 1493, in the south of France, in Lombardy, and in the

north of Germany. Now, the vessels of Columbus did not arrive till April at Seville; and the disease could not possibly have spread so far from this place within two months. Others have sought for the origin of this disease in the expulsion of the Marranos (secret Jews) from Spain, between 1485 and 1493. Many thousands of these unhappy persons died of the plague on their passage by sea to Italy, Greece, &c. Thousands of others suffered by the leprosy; and, without doubt, they carried misery and sickness with them wherever they went. But that this particular form of disease existed among them cannot be proved; and, moreover, though Germany was not visited by these emigrants, the syphilis showed itself simultaneously, in 1493, in Halle, Brunswick, Mecklenburg, &c. As to the opinion that the venereal disease had always existed in some form, it only amounts to a play upon words, as a mere diseased state of the genitals is far from amounting to syphilis, especially if we consider the horrid consequences which that disease produced at the time referred to. The most probable conclusion is, that the venereal disease was produced by an epidemic tendency existing at that time, which gave this new form to the leprosy then so widely spread. The ancient writers, for many years, described syphilis more as a terrible disease of the skin and bones in general than as a mere affection of particular parts; more as a plague than as a disorder of particular individuals. A new form of disease could be developed the more readily, as the political relations of that time brought the nations very much into connection with each other: Spaniards, French, Germans, traversed Italy, and all these, together with the Italians, spread through Germany. The disease brought by the sailors from America, akin to scurvy, may also have contributed its part. It is certain that the disease was then far more terrible than now. It made the patient an object of horror to his friends, and almost inevitably reduced him to despair, as no physician was able to aid him, and the remedies used were almost as shocking as the disease. Since contagion, at that period, took place much easier than now, and houses of ill fame, which contributed greatly to spread the disease, were found every where, the disorder had by no means the same character of disgrace connected with it as at present. On the contrary, Ulrich von Hutten, who suffered from it for years, and at length recovered his health by the use of guaiacum, and the strength of his constitution, always enjoyed public esteem, and even dedicated his work on the disease to the first spiritual prince of Germany, without indecorum or offence. Like other diseases, it gradually diminished in virulence, particularly after Paracelsus had found in mercury, and Swediauer in acids, the most effective remedies against it; and great suffering does not arise from it at present except in consequence of neglect. Yet it is still a formidable disease, as it injures more or less the general health, and lays the foundation for other diseases of a very obstinate character—gout, rheumatism, complaints in the bladder, &c.

SYRUP. Syrups are saturated solutions of sugar in water, either simple or compound; and although it is a form of medicine now not so fashionable as formerly, there is still not less than twenty formulas for medicated syrups in our three national pharmacopeias; although, doubtless, their number might be abridged one half without any very serious detriment to the sick. Formerly, upwards of one hundred were kept in apothecaries' shops, and some of them in large quantities; and we are still under the necessity, for variety's sake, to indulge the taste, smell, and even the eye by the colour, to retain the officinal syrups. To prevent repetition, we have here appended this general direction, which may be followed in every case in preparing syrups.

Simple Syrup.

Refined sugar, fifteen ounces.
Water, eight ounces.

Let the sugar be dissolved by a gentle heat in the water, and so as to form a syrup; then set it aside for twenty-four hours; take off the scum, and pour off the syrup from the fæces, if any. The same plan is to be followed in every other syrup, whether it is made of a decoction, infusion, or juice; these are only to be supposed as taking the place of the water in this simple syrup. The old plan of reducing the sugar to powder has been found to render the syrup cloudy, and is never employed by the wholesale makers of syrup, who produce much finer syrups than the apothecaries usually do. If necessary, syrup is easily clarified by beating to a froth the white of an egg with one or two ounces of water, (which quantity is sufficient for a pint of syrup,) mixing it with the syrup and boiling the mixture for a few seconds until the white of the egg coagulates, and enveloping all the heterogeneous matters, forms a scum which may be easily taken off or separated by straining through a flannel. The object of forming medicated syrups is either to render them agreeable to the palate, or to preserve them from fermentation. In the latter case, the quantity of sugar added becomes a matter of great importance; for if too much be employed, the sugar will separate by crystallization; and if too little, instead of preventing fermentation, will accelerate it. About two parts of sugar to one of fluid are the proportions directed by the British colleges with this view. Simple syrup, if well prepared, should have neither flavour nor colour, and is more convenient in extemporaneous prescription than undissolved sugar.

The best plan we know for families is to fit a

stoneware basin or bowl to the top of a saucepan half full of water, placing the sugar and liquid for forming the syrup in the basin or bowl, covered up from dust; and placing the saucepan on a slow clear fire, a little salt may be added to the water in the saucepan, and the sugar will be dissolved and a syrup formed by the heat of the steam from boiling the water. If acids enter into the composition, a glass or china basin should be used, as the acid might dissolve the lead with which some stoneware basins are glazed. If the delf is white, there is little risk of this, and if brown salted ware, none; indeed, this latter kind is preferable to any other for the purpose.

The *capillaire* of the shops, which, as we have already stated, is often better prepared than the syrup of the apothecary, is made by dissolving in water the broad ends only of the sugar loaves, without breaking or bruising them, as otherwise the syrup would be cloudy, adding to each pint of the syrup an egg broken in pieces, the shell being put in not to lose the white sticking to it; and after stirring the whole well together, giving it a boil, and straining through flannel. When cold, there is to be added to each pint about an ounce of either orange flower, or rose water, or both. Some, to give a rich appearance to the syrup, dissolve gum tragacanth in it; but then it does not mix well with wine, the gum separating in threads. Capillaire, however, if properly prepared, should be a syrup of *Maiden Hair*, or the Adianthum Capillus *Veneris*, from which it takes its name, with a portion of honey and orange flower water; and when thus prepared was esteemed highly restorative: and in France, and in some females at home, the maiden hair and honey are still used. Capillaire, however, as it is, is used to mix with fair cold pump water to form an agreeable summer drink.

Common capillaire, made with plum water only, is also used by publicans, especially in London, to sweeten their mixed liquors, as brandy or gin, and water, as it dissolves quicker than solid lumps of sugar.

As syrups quickly ferment and spoil if kept in a temperatature above 60°, a small quantity should only be retained for immediate use, and the stock kept in a good cellar in a temperature not exceeding 55°. They should never be used after they have begun to ferment; but even in this state many syrups will be useful to furnish vinegar, if the medical properties they contain form no objection to this use being made. If all patients were endowed with understanding and common sense, then might half the syrups and many other preparations be expunged; but with human nature as it is, some few of these gewgaws must be retained. Indeed, we are sure syrups, the infusion of roses, the compound tincture of laudanum, Epsom salts, and blue pill, are, combined, the sheet anchor of the London apothecary, who well knows the value of taste, smell, and appearance, in inducing his patients to gulp down his three or four eighteen pence draughts per diem.

SYSTOLE. The contraction of the heart.

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TABES. A wasting of the body; it is characterized by emaciation and weakness, attended with hectic fever and night sweats, but without cough or expectoration, whereby it is distinguished from pulmonary consumption.

TABES MESENTERICA. This disease is characterized by great emaciation of the limbs, and enlargement of the belly. The disease occurs in scrofulous children, and seems to depend upon disease of the mesenteric glands within the abdomen, at least the disease and enlargement of these glands always co-exist.

The bowels are generally in a very irregular state at the commencement of the disease, being sometimes very loose and the fæces of an unhealthy appearance; at other times they are costive. The child is then observed to fall off very much in strength; the extremities and the face becoming much emaciated, while the belly is observed to be tumid; the appetite is impaired, although in some cases it is ravenous or morbidly increased; there is great thirst, and frequently there are griping pains. In general, children affected with this disease have a degree of fever; most commonly the febrile attack comes on at night and is relieved towards morning by a free perspiration. The belly feels doughy and knotty, at times hard, tense, and tympanitic. At first the swelling of the belly seems to be owing to wind; but as the disease goes on, effusion of fluid takes place into the cavity of the abdomen; there is constant diarrhæa, till at last the child dies exhausted, or is carried off by disease of some other part, commonly of the brain or lungs.

On dissection of patients who die of this dis-

ease, the mesenteric glands are found enlarged and of a cheesy or tubercular structure; sometimes there is chronic peritonitis, but more frequently, indeed almost constantly, the mucous or lining membrane of the intestines is found extensively ulcerated. Tabes Mesenterica attacks children of a scrofulous habit, and is of very frequent occurrence in large towns amongst the children of the poor, who are badly fed, and clothed, exposed to all the vicissitudes of the weather, and who frequently pay but little attention to cleanliness.

Treatment. In the first stage, when there is fever and thirst and foul tongue, the application of a few leeches to the belly, if the patient be sufficiently strong, followed by counter-irritation will often be found very beneficial. The bowels should be kept gently open by means of small doses of castor oil, or a few grains of the carbonate of soda combined with rhubarb; if there be diarrhœa, small doses of Dover's powder, combined with prepared chalk, may be given occasionally, after the bowels have been cleared by means of a dose of castor oil; counter-irritation by means of frictions with tartar-emetic ointment, or a liniment of camphor oil, turpentine, and hartshorn should also be used, and the tepid salt water bath, or if the child be strong enough, sea-bathing, but in general the tepid salt water bath, or sponging the body with warm salt water, is preferable. In most cases we require to give bitter tonics, combined with diluted sulphuric acid in small doses to improve the tone of the digestive organs; but we should avoid barks or quinine when there is great heat of skin and headache and thirst. In such cases small does of the elixir of vitriol in water should be substituted. When the state of the digestive organs is improved, iodine should be exhibited in the form of hydriodate of potass, combined with some bitter infusion. The formula which we prefer is the following:

Take of Hydrodate of potass twenty grains,
Compound tincture of cardamoms, sixty drops,
Infusion of columba root, four ounces.

A small teaspoonful of the above mixture may be given twice a day; if it produce griping, nausea, or loss of appetite, the dose may be reduced, or the medicine discontinued for a time. When the child is able to go about, sea air and moderate exercise will often prove of essential service. In other respects, the treatment we recommended in scrofula is equally applicable to this disease, which depends on a scrofulous state of the constitution.

TÆNIA. See *Tapeworm* and *Worms*.

TAMARIND-TREE. A large and beautiful tree of the East Indies, belonging to the natural family *leguminosæ*. The leaves are pinnate, composed of sixteen or eighteen pairs of sessile leaflets, which are half an inch only in length, and one-sixth in breadth. The flowers are disposed, five or six together, in loose clusters: the petals are yellowish, and beautifully variegated with red veins. The pods are thick, compressed, and of a dull brown colour when ripe. The seeds are flat, angular, hard and shining, and are lodged in a dark, soft, adhesive pulp. The tamarind-tree exists also in Arabia, Egypt, and other parts of Africa; but that of the West Indies is perhaps a different species, distinguished by the shortness of the pods, which contain two, three, or four seeds only. In the West Indies, the pods are gathered in June, July and August, when fully ripe; and the fruit, being freed from the shelly fragments, is placed in layers in a cask, and boiling syrup poured over it till the cask is filled; the syrup pervades every part quite down to the bottom; and when cool the cask is headed for sale. The East India tamarinds are darker coloured and drier, are more esteemed, and are said to be preserved without sugar. This fruit has an agreeable acid and sweetish taste, is refrigerant and gently laxative. A simple infusion in warm water forms a very grateful beverage, which is advantageously used in febrile diseases. The Turks and Arabs carry the pods, prepared with sugar or honey, either green or ripe, in their journeys across the deserts; and they are found to constitute an agreeable and wholesome article of food.

TANSY. This plant grows in beds by road sides, and in waste places. The stems are upright, branching, and about two feet high; the leaves doubly pinnate, and incisely serrate, and of an agreeable aspect. It belongs to the *compositæ*. The flowers are yellow buttons, disposed in a large, upright corymb. The whole plant has a strong and penetrating odour, agreeable to some persons, and an extremely bitter taste. It contains an acrid volatile oil, is stimulant and carminative, and the decoction and seeds are recommended as anthelmintic and sudorific. The young leaves are shredded down, and employed to give colour and flavour to puddings; they are also used in omelets and cakes, and those of the curled variety for garnishing.

TAPEWORM. One of the most stubborn worms which infest the bowels of beasts, and also of man, has its name from the broad, flat, ribbon-like appearance of each articulation and of the whole body, which is composed of these articulations. Bremser makes two species—*tænia* and *bothryocephalus*—both of which were formerly united in one species, under the name of *tænia*. One kind of both species appears in the human body; namely, 1. *tænia solium*, the single or long-limbed chainworm, in which the organs of generation are found on one side of every articulation; it is the kind most commonly met with in Germany, France and Britain; 2. *bothryocephalus latus*, the proper or broad tape-

worm, in which the sexual organs are found on the flat side of the articulations. It is met with only in Russia, Poland, Switzerland, and some parts of France, and causes little pain. Both kinds often reach the length of twenty or thirty feet, and usually only detached parts pass from the body, but not that which has the head; before this has passed away, the worm reproduces itself, and, moreover, what was formerly doubted, several tapeworms are often met with in one intestinal canal. The symptoms of the tapeworm are a peculiar, sudden sensation of pricking in the stomach, oppression, and undulatory motions in the abdomen, anxiety, cramps, swoons, &c.; but all these symptoms are uncertain, and only the actual passing of pieces of the worm from the body is a certain proof of its existence. The cure is difficult, and requires an experienced physician.

TAPIOCA. The substance called *tapioca* is procured from the Manioc or Capava, a tortuous shrub allied to the castor oil plant, which is indigenous to tropical America, and several countries in Asia and Africa. Every part of the plant is filled with a milky juice, which is a violent and dangerous poison, bringing on death in a few minutes when swallowed. Yet human ingenuity has converted the roots of this plant into an article of food. Tapioca is largely imported into Europe and the United States, and used for making puddings and other culinary purposes. It is separated from the fibrous part of the roots by taking a small quantity of the pulp (after the juice is extracted by pressure), and working it by hand till a thick white cream appears on the surface. This being scraped off and washed in water, gradually subsides to the bottom. After the water is poured off, the remaining moisture is dissipated by a slow fire, and the substance being constantly stirred, gradually forms into grains rather larger than those of sago. This is the purest and most wholesome part of the manioc plant, and when well bruised and softened in warm water, and then boiled with milk or milk and water, forms an excellent light article of diet for children and invalids.

TAR. A well known substance obtained chiefly from the pine by burning in a close, smothering heat. Some of the unctuous species of bitumen are also called *mineral tar*. The tar of the north of Europe is superior to that of the United States, on account of the latter being prepared from dead wood, while the former is procured from trees recently felled. The mode practised in the Scandinavian peninsula is precisely that described by Theophrastus and Dioscorides, as in use in ancient Greece. A conical cavity is made in the ground, with a cast-iron pan at bottom, from which leads a funnel. The billets of wood are thrown into this cavity, and, being covered with turf, are slowly burnt without flame. The tar which exudes during combustion is conducted off through the funnel above-mentioned into barrels, which are immediately bunged, and fit for exportation. Fumigations of tar have been recommended in phthisis, by Sir A. Chrichton, in some cases of catarrhal phthisis and hepatization; they give relief, by exciting expectoration, but never effect a cure of tuberculous phthisis. Tar is also applied externally, either alone or combined with some other ointment, as a stimulating application to some sores and cutaneous diseases, such as ring-worm.

Dr Bateman states that he has seen good effects from pitch given internally in cases of ichthyoisis, or fish-skin disease. It occasioned the rough skin to crack and fall off without the aid of external applications, and left a sound skin underneath. This medicine, made into pills with flour or liquorice powder, may be taken to a great extent, even three drams or half an ounce daily, not only without injury, but with benefit to the general health, and affords one of the most effectual means of controlling the languid circulation, and the inert and arid condition of the skin. The dose at first is about eight or ten grains twice a day.

TARANTULA. (From Taranta, a city in Naples, where they abound.) A kind of venomous spider, whose bite is said to produce madness, accompanied by an irresistible desire to dance. The effects of its bite are said to be cured by music. Some authors, however, assert that these symptoms caused by the bite of the tarantula are altogether fabulous, and Dr Cerillo states "that he never could make the tarantula bite himself, nor any other person, though provoked."

TARTAR. The concretion which fixes to the inside of casks containing wine. It is alloyed with much extractive and colouring matter, from which it is purified by decoction with argillaceous earths and subsequent crystallization. By this means it becomes perfectly white, and shoots out crystals of tartar, consisting of a peculiar acid which exists naturally in the grape, called tartaric acid, imperfectly saturated with potassa; it is therefore a supertartrate of that alkali, and when so purified and powdered is the cream of tartar of the shops. It acts as a diuretic, and watery purgative and refrigerant, and is prescribed in dropsies, eruptive diseases, fevers, piles, &c.

TARTAR EMETIC, OR TARTRATE OF ANTIMONY, is a most valuable medicine. It produces a variety of effects on the system according to the method and dose in which it is exhibited. Given in solution in small doses, as the fourth or eighth of a grain, every hour or two, it causes a degree of nausea without producing vomiting, thus diminishing the force of the heart's action and consequently of the circula-

tion, hence its use in cases of inflammation and fever after blood has been abstracted, and also in those cases where we wish to induce great prostration of strength as in some cases of dislocation. In the small doses combined with a small proportion of opium or hyosciamus, it produces diaphoresis or sweating, whilst in doses of two, three, or four grains, it is an active emetic. It is better however to prescribe it in conjunction with ipecacuan for the last mentioned purpose, as if given alone the nausea is long of subsiding, and in some cases, particularly in children, it may give rise to great irritation of the mucous membrane of the bowels. Combined with ipecacuan, the dose for an adult is one grain of tartar emetic and a scruple of ipecacuan. If taken by mistake in large quantity, it is a violent acrid poison, giving rise to violent vomiting, pain in epigastrium, and purging and other symptoms of inflammation of the intestinal canal. The best remedies, are the whites of eggs raw, sweet milk, or oil, and solutions of the carbonates of potass or soda. See *Antimony*.

TARTAR OF THE TEETH. This name is given to the concretion which is frequently found incrusting the teeth. It seems to be composed principally of the phosphate of lime deposited from the saliva, and most frequently in persons who are subject to stomach complaints, or those subject to scurvy of the gums. When the saliva is viscid, and contains a larger proportion of saline matters than usual, it accumulates round the teeth during sleep and is there decomposed, the earthy or saline matter being deposited round the teeth particularly behind the front teeth of the lower jaw, if allowed to remain it continues to accumulate separating the gums from the teeth, and rendering the former flexible and tender. It should be prevented from gathering by attention to cleanliness, washing the mouth frequently and brushing the teeth with some simple dentifrice and by paying attention to the state of the digestive organs. When very thick and hard it requires to be removed carefully by means of the dentist's instruments.

TARTARIC ACID. This acid is procured from a substance deposited on the inside of casks, in which certain kinds of wine are kept, tinged with the colouring matter of the wine, and incorporated with any other impurities with which it may come in contact. This substance was long known by the name of red or white *argal* or *argel*, according to its degree of purity. This substance, purified by solution and other means, and afterwards crystallized, received the name of crystals of tartar, or cream of tartar. This was found to be a supertartrate of potass, which the London college are now pleased to call a bitartrate of potash, having a peculiar acid combined with potash, which acid was shown to exist in the grape previous to fermentation, and was therefore not the result of the fermentative process, as it was found that it existed in many other fruit and plants, especially in tamarinds, balm, sage, &c.

This acid is never prepared by the apothecary, but on a large scale by the manufacturing chemist, and is sold in the shops in imperfectly transparent white crystals, in irregular groups, that do not effloresce nor deliquesce on being exposed to air; or in the form of powder; and in this latter form the acid is most commonly retailed.

Tartaric acid possesses the same properties of the citric acid, but not in so mild and agreeable form; indeed, it is often substituted for that acid, and in some cases it answers equally well, the only fraud being in the price. A London druggist realized a considerable sum by puffing it off under the title of the acid of the wine grape, which undoubtedly it is. It may be used to acidulate drinks in the same proportions and manner as the lemon acid; but its principal consumption is now in what are called the sodaic and seidlitz powders.

According to Dr Barker, 75 parts of crystallized tartaric acid require of the salts here subjoined the following quantities—

Of dry carbonate of potash, .	70 parts
Crystallized potash, .	101 ——
Carbonate of soda dry, .	54 ——
—————— crystals, .	144 ——
—————— ammonia, .	39 ——
Bicarbonate —————— .	61 ——

The usual formula for the sodaic powders, as sold in the shops, is tartaric acid twenty-five grains in white paper, bicarbonate of soda thirty grains in blue paper. The soda is first dissolved in from a gill to a gill and a half, or even half a pint of water, and then the tartaric acid quickly shaken in and stirred, and the draught swallowed while effervescing.

Seidlitz Powder.

Powder of Rochelle salts, two drams.
Bicarbonate of soda, two scruples.

Mix, and dissolve in a gill and a half of water. Tartaric acid in powder thirty-five grains, dissolve in a separate glass or tumbler in two ounces of water, and mix the acid solution with the other. This too is to be taken in a state of effervescence.

The addition of half an ounce of simple syrup, and ten grains of fine powdered ginger to the soda powders, render them more agreeable to cold stomachs. Or what is better, substituting a well sweetened cold infusion of ginger for water, or one or two teaspoonfuls of the tincture of ginger and sugar. In many cases we vary the proportions; those above are those used in retail shops, although many shops give smaller quantities. The medical use of these powders will be more appropriately discussed under the heads of those diseases in which they may be employed with advantage.

It should not, however, be concealed that tartaric acid is a corrosive poison, and that although not so quick in its operation, because

not likely to be swallowed in such large doses, occasions almost the same symptoms as those occasioned by oxalic acid, (see *Acid, Oxalic,*) and when death ensues, almost the very same morbid appearances present themselves.

The *treatment* should be active, diluting largely with solutions of the alkalies, such as the carbonates of potash and soda, or chalk and water in considerable quantities. Afterwards, bland liquids, such as linseed tea. The inflammatory symptoms should be treated as directed in other cases by bleeding, and the other cooling means.

When poisoning has occurred from acids, see *Nitric Acid*, &c.

TAR-WATER is prepared by adding two pints of tar to a gallon of water; this mixture must be stirred for a quarter of an hour, and after the tar has subsided, strain the liquor, and keep it in well corked bottles.

Tar-water should have the colour of white wine, and a sharp empyreumatic taste. It is, in fact, a weak pyrolignic acid, saturated with empyreumatic oil. It was at one time much extolled, but has of late been little employed. Tar-water is a heating diuretic and sudorific remedy, but by no means so powerful, or so generally admissible, as it was at one time represented to be. It acts as a stimulant, raising the pulse, and increasing the discharge by the skin and kidneys. It may be given to the extent of a pint or two in the course of a day.

TASTE. One of the five senses, by which are perceived certain impressions made by particles of bodies dissolved by the saliva on the tongue or on the other contiguous parts of the body endowed with this sense. Taste does not, however, appear to be confined to the tongue, that member being wanting in many animals which do not seem destitute of the sense, and, in many which have a tongue, this member, from its structure, is not adapted to receive impressions from objects of taste. Again, it is not the whole surface of the human tongue, according to some late experiments, which is capable of those impressions that we ascribe to taste. By covering the tongue with parchment, sometimes in whole, and sometimes in different parts, two experimenters in Paris (MM. Guyot and Admyraula) found, that the end and sides of the tongue, and a small space at the root of it, together with a small surface at the anterior and superior part of the roof of the palate, are the only portions of surface in the cavity of the mouth and throat that can distinguish taste or sapidity from mere touch. A portion of extract of aloes, placed at any other part, gives no sensation but that of touch, until the saliva carries a solution of the sapid matters to those parts of the cavity. The little glands of the tongue dissolve the salts contained in articles of food, which, when dissolved, penetrate into the three nerves on each side of the tongue that are connected with the brain and spinal marrow. Thus we receive those sensations which we call sweet, sour, bitter, sharp, insipid, astringent, and numberless others, which, though we have no names for them, yet are very distinct, as they enable us to recognise particular objects. The impressions thus received we ascribe to the objects that excite them, though acidity is, properly speaking, not more a quality of vinegar than pain is of the whip or spur: the word taste thus comes to be applied to the things which excite it; and we say, sugar tastes sweet with the same propriety or impropriety that we say, a flower smells sweet, a bird looks black. This confusion of cause and effect, in common language, is very natural, in fact unavoidable, considering the way in which language is formed. We possess very few words to designate the endless variety of tastes, of which we are very sensible. In this respect taste is similar to hearing. Though we all know how to distinguish a tune on the piano from the same on the guitar, it is impossible to explain distinctly why or how. Our capability of expressing tastes is, however, much greater than of expressing smells. Taste and smell are very closely connected, the loss of one being accompanied with the loss of the other. Many words, designating impressions on the one sense, are used also for those received from the other, and flavour is daily applied to both. A sweet smell is a very common phrase; and in Thuringia the common people say the nosegay tastes sweet. In respect to æsthetics, taste signifies that faculty by which we judge of the beautiful and proper, and distinguish them from the ugly and unsuitable. The name results from the similarity of this faculty with the physical taste. The office of both is to discriminate between the agreeable and disagreeable; but the comparison has often been carried too far; thus, because the beautiful is also agreeable, the beautiful and agreeable have often been taken for one and the same; and because matters of physical taste are not proper subjects of dispute (since the same flavour, for instance, may be pleasant to one person and very disagreeable to others), it has been sometimes supposed that taste, in æsthetics, can have reference only to the accidental impression of a work of art on the individual. But æsthetics teaches that, though an individual may not like a picture of Raphael, and find less satisfaction in a drama of Shakspeare than in the coarse productions of a very inferior mind, there is yet beauty in them; that is to say, they answer the demands of certain rules which have an objective and general character, so that the beauty of a work of art may be a proper subject of discussion. Taste is the faculty of judgment operating in a certain sphere. It must be formed by practice, whereby it differs essentially from the sense of the beautiful. This is natural,

whilst taste is the fruit of observation and reflection.

TEA, or *Thea.* Botanists hold different opinions respecting the botanical characters of the different teas, from which all varieties are furnished which appear in the British market. Some assert that there is but one species, and others that there are two, viz., the *bohea* or black tea, and the *viridis* or green tea, and that out of these two species all the varieties known in commerce and in civil life are produced; while another party affirm, that the green colour is communicated to the teas so called, by a chemical process. Our limits will not permit us to enter on this controversy; but certain that the different manipulations to which the Chinese tea plant or plants are subject by that ancient and interesting nation, are from their peculiar habits not yet, if ever they will be, fully explained, either to Europeans, or any other class of men on the face of the earth.

It has, however, been satisfactorily proved, that tea in its natural state is a narcotic and poisonous plant, and that by drying on metallic plates, and keeping it for a long period, none of it ever being used, even by the Chinese, till it has, at least, been kept in a dried state for twelve months. The tea plant or plants are natives of China or Japan, where they attain the height of five or six feet. Great pains are bestowed on collecting the leaves singly at three different times, about the middle of February, the beginning of March, and in April. Some say, the leaves are first exposed to the steam of boiling water, and then dried on copper plates, while better informants affirm, that the leaves are simply dried on iron plates suspended over a fire till they become dry and shrivelled; and when dried, they are packed in boxes, lined with tin or paper lead, and in that state exported to Europe, and America, &c.

In commerce, tea, or teas, are divided into three kinds of green, and five of bohea or black; and there are other varieties, which take their names from the shape and size of the packages, and some from a peculiar flavour, produced by a mixture of various teas, the proportions of which are kept secret, such as Howqua's celebrated mixture, which has a most pleasant odour to most tea drinkers. Of the green teas, the principal are, 1. *Imperial* or *bloom tea*, having a large leaf, a faint smell, and being of a light green colour. 2. *Hyson*, which has small curled leaves of a green shade, inclining to blue. 3. *Singlo* tea, thus termed from the place where it is cultivated. The blacks or boheas embrace, 1. *Souchong*, which, on infusion, imparts a yellowish green colour. 2. *Camho*, a fine tea, emitting a fragrant violet smell, and yielding a pale shade; it receives its name from the province where it is reared. 3. *Pekoe* tea is known by the small white flowers that are mixed with it. 4. *Congo*, has a larger leaf than the preceding variety, and yields a deeper tint to water. And, 5. *Common bohea* tea, the leaves of which are of an uniform dark green colour. Besides these, as already observed, there are others, sold under the names of *Padie, Gunpowder* tea, &c., which differ from the preceding only in the minuteness of their leaves, and being dried with more care, or have a different form of package. Indeed, it is more than likely, that the free trade in tea, lately granted, will produce a still greater number of varieties, and that we shall have other varieties of teas, with still more jaw-breaking Chinese names than even Howqua's catty packages.

As a medicine, tea is entitled to our notice; it doubtless possesses considerable diaphoretic, diuretic, and mild stimulating and exhilarating qualities. The sick nurse, and often the professional attendant, wearied out with watching sickness, and looking on pain and disease, well knows the value of a cup of tea. Though drowsy and nodding, this exhilarating beverage will inspire with new life and fresh vigour, and the weary eyelids, if bathed even with a less powerful potion of the liquor than that which is indulged the palate, will feel content to remain on duty another night, and watch with less fatigue the progress of pain. The temperate traveller, or the worn-out daily labourer, are equally aware of its benign and salutary effects. The former arrives at his inn, and the latter at his cottage, and both are wet and weary; the attentive host, or his assistants, lose no time in preparing and furnishing the tea table, the repast is soon dispatched, the feet and limbs are immersed in a tepid bath, and the wearied sojourner, under the influence of his exhilarating, but diaphoretic beverage, is conveyed to his bed, and reposes in quiet and peace; while an affectionate wife performs the equally kind, and still more endearing offices, to the son of toil. To be plain, there are few more appropriate liquors that can be found, either among rich or poor, savage or sage, for a fatigued and exhausted body and mind, than a cup of well prepared tea. We could, did the nature of the case require it, produce a mass of incontrovertible evidence, to prove that on most individuals who use it, this beverage produces the most exhilarating effects, gently exciting the intellectual and physical powers, and is perhaps superior to every other article, either of diet or medicine, for imparting vigilance and watchfulness, even to the drowsy and exhausted.

As a diuretic, tea, especially green tea, possesses no ordinary powers; this quality, however, is not confined to the green tea alone, although our experience of its utility, as a diuretic, has been more exclusively confined to that description of tea; for in some of the cases, in which we have tried black teas, they have proved

little, if at all, inferior to the other. Dr Perceval of Dublin, and others, have been in the habit of prescribing green tea punch in dropsical cases, and in cases of ascites, the effect of debility in the sequel of febrile diseases, especially of scarlet fever, green tea punch is, perhaps, one of the very best remedies that can be employed, especially by those who have formerly indulged in intemperate habits. The formula we prefer, is to infuse a quarter of an ounce of equal parts of black and green tea for fifteen minutes in half a pint of soft boiling water, and then adding to it two ounces of good gin. Where the best foreign gin cannot be procured, British gin may be used. Great care, however, should be taken in the use of this medicine, that the patient does not acquire too great a liking for green tea punch, and thus render himself liable to a castigation from temperance and tee-total societies. The remedy should be gradually withdrawn, and some mild diuretic infusion substituted. Although the consumption of Chinese tea is greater in Britain than in any other country, yet Mr Gray says, that no where is it so bad, or made upon worse principles. To have good tea, the whole quantity of boiling water intended to be used, should be, as is the case in all infusions, poured at once on the leaves previously bruised (and many connoisseurs in tea, prefer the last remains of a tea package), left to stand until sufficiently impregnated, then strained off, and the auxiliaries, milk or cream, and sugar, added. Another method to preserve the flavour of tea, and which by some is considered a better, is to pour the requisite quantity of cold water upon the bruised leaves, and put the vessel containing the cold water and tea into a pan of water boiling on or beside the fire, until the tea is sufficiently heated to be poured off and drank, observing, that if much milk, or the like is added, the tea must be made so much the hotter, that they may not cool it too much. This is the most common method in China.

Indeed, it is most accordant with chemical principles. The Chinese, however, do not take tea as a meal as we do, but during the whole day, as often as an opportunity occurs; and it is their custom to present a visitor with a pipe, in which, in many instances, an opium pill is concealed, and then a cup of tea. We may here observe by the way, that the Chinese are a robust people, and live to an old age.

The usual consumption of tea for a man and his wife in Britain, is about a quarter of a pound of tea, and a pound of sugar weekly, this will give a quarter of an ounce of tea, and half an ounce of sugar to each person at a meal.

In consulting authorities on the effects of tea as an article of diet, it is clear the great majority are in favour of the salutiferous properties of the article. True indeed, tea is a narcotic, and liable to all the objections that can be urged against that class of plants; but at the same time, as has been already stated, its narcotic effects are greatly modified by age, or the length of time the tea is kept in a dried state, even before it leaves China, which is from twelve to eighteen months, and it is therefore generally two years old, or even more, before it is used in Europe. Add to this, the peculiar processes it undergoes, before it is considered fit for packing, and the still more astonishing modifications of habit in the individuals who use it, as it regards constitution, and even age or sex; for we believe it will be generally found that females can consume a greater quantity of strong tea than the other sex, and can bear its narcotic effects with less injury to the general health. While, however, this is the case, there is no doubt the fair sex suffer most from the intemperate use of tea, and we are willing even to find them an apology for this indulgence, intemperate though it be. The false views taken of moral conduct, is one of the reasons why females are led to indulge more freely in the use of this pleasant beverage than males. If the former were thought, much less seen, to indulge in an extra glass of wine, punch or toddy, although the indulgence fell far short of intoxication, and only produced a little superabundant volubility and temporary excitement, the offence would, in most instances, be deemed unpardonable; and were the lady single or unmarried, she would be most likely to remain so, for any thing that the young men, who were in possession of the fama, cared upon the subject. Were the latter, however, to indulge to a far greater extent, not only to excite volubility, but in many instances to paralyze his vocal organs, the crime, if it was deemed any, might create a laugh at the expense of the wine, toddy, or punch bibber; but the circumstance would be forgot in a few days, and he would again be an equally welcome guest at the same table where he had indulged in his intemperate cups. This, however, is not the only case in which our fair sisters and our better halfs are considered the subjects of a higher responsibility, than even their protectors, their lovers, or their lords and masters; and what, but a distorted view of Christian morals, could have produced such feelings and such conduct.

To see the true effects of tea on the physical and intellectual faculties, we must visit a tea-party of simple unsophisticated female cottagers in the far highlands or islands of Scotland, or in the wilds, mosses, and mountains of Cunnemara or Donegal. Were a stranger happening to step in on the evening of the christening of a child, or some other domestic festival, long ere the poteen punch or the Athole brose were introduced, he would be equally surprised and delighted to find, that to the infusion of the Chinese leaf alone

was to be ascribed, that mirth, volubility, and good humour, which assailed his eyes and ears in the cottage or cabin of the poor mountaineer.

Tea is a beverage, used in moderation, which is equally productive of health, domestic comfort and sociality, and which we have no wish to see banished, or excluded from the poor man's table.

Doubtless, there are a number of indigenous herbs and plants, with their various products, which might furnish a substitute for foreign tea, and their occasional, or even continued use, may not only be permitted, but in many cases prove highly beneficial, and we have lost no opportunity of doing justice to their claims.

TEAR, AND LACHRYMAL ORGANS. This limpid fluid, secreted by the lachrymal glands, and flowing on the surface of the eyes, is a little heavier than water, and contains much pure soda, also muriate, carbonate and phosphate of soda, and phosphate of lime. The organs which secrete this liquid are the lachrymal glands, one of which is situated in the external angle of each orbit, and emits six or seven excretory ducts, which open on the internal surface of the upper eyelid, and pour forth the tears. The tears have mixed with them an arterious, roscid vapour, which exhales from the internal surface of the eyelids, and external of the *tunica conjunctiva*, into the eye. Perhaps the aqueous humour also transudes through the pores of the cornea on the surface of the eye. A certain part of this aqueous fluid is dissipated in the air; but the greatest part, after having performed its office, is propelled by the orbicular muscle, which so closely compresses the eyelid to the ball of the eye as to leave no space between, except at the internal angle, where the tears are collected. From this collection the tears are propelled through the lachrymal canals into the lachrymal sac, and flow into the cavity of the nostrils, where they are partly thrown out, partly swallowed. If the passage of the tears from the eyes to the nose is disturbed, or prevented (*e. g.* by a stoppage of the lachrymal duct), they flow down the cheeks, and also collect in the lachrymal sac, distend it, are here changed in their quality, and cause an inflammation, which generally brings on ulceration, and, if not attended to, even affects the bones. This is the disease known by the name of *lachrymal fistula*. To cure it, an operation is required, by which a new duct is formed for the tears to enter the nose. The tears have no smell, but a saltish taste, as people who weep perceive. They are of a transparent colour, and aqueous consistence. The quantity, in its natural state, is just sufficient to moisten the surface of the eye and eyelids; but from sorrow, or any kind of stimulus applied to the surface of the eye, so great is the quantity of tears secreted, that the *puncta lachrymalia* are unable to absorb them. Thus the greatest part runs down from the internal angle of the eyelids, in the form of great and copious drops, upon the cheeks. A great quantity also descends through the lachrymal passage into the nostrils; hence those who cry have an increased discharge from the nose. The use of the tears is to prevent the pellucid cornea from drying and becoming opaque, or the eye from concreting with the eyelids. They prevent that pain which would otherwise arise from the friction of the eyelids against the bulb of the eye, from continually winking. They wash and clean away the dust of the atmosphere, or any thing acrid that has fallen into the eye. Weeping relieves the head of congestions.

TEETH. Small bones fixed in the *alveoli* of the upper and under jaw. In early infancy, nature designs us for the softest aliment, so that the gums alone are then sufficient for the purpose of manducation; but, as we advance in life, and require a different food, she provides us with teeth. These are the hardest and whitest of our bones, and, at full maturity, we usually find thirty-two in both jaws, viz. sixteen above, and as many below. Their number varies, indeed, in different subjects; but it is seldom seen to exceed thirty-two, and it will very rarely be found to be less than twenty-eight. Each tooth may be divided into two parts, viz. its body, or that part which appears above the gums and its fang, or root, which is fixed into the socket. The boundary between these two, close to the edge of the gum, where there is usually a small circular depression, is called the neck of the tooth. Every tooth is composed of its cortex, or enamel, and its internal bony substances. The enamel, or, as it is sometimes called, the vitreous part of the tooth, is a very hard and compact substance, of a white colour, and peculiar to the teeth. It is found only upon the body of the tooth, covering the outside of the bony or internal substance. When broken, it appears fibrous or striated, and all the *striæ* are directed from the circumference to the centre of the tooth. The bony part of a tooth resembles other bones in its structure, but is much harder than the most compact part of bones in general. It composes the inner part of the body, and the whole of the root of the tooth. Each tooth has an inner cavity, supplied with blood-vessels and nerves, which pass through the small hole in the root. In old people this hole sometimes closes, and the tooth becomes then insensible. The teeth are invested with periosteum from their fangs to a little beyond their bony sockets, where it is attached to the gums. This membrane seems to be common to the tooth which it encloses, and to the sockets which it lines. The three classes into which the teeth are commonly divided, are incisors, canine, and molars, or grinders. The incisors are the four teeth in the fore part of

each jaw; they derive their name from their use in dividing and cutting the food in the manner of a wedge, and have each of them two surfaces, which meet in a sharp edge. The canine or *cuspidati* (eye-teeth) are the longest of all the teeth, deriving their name from their resemblance to a dog's tusk. There is one of these teeth on each side of the incisors, so that there are two in each jaw. Mr Hunter remarks, that we may trace in them a similarity in shape, situation, and use, from the most imperfect carnivorous animal—which we believe to be the human species—to the lion, which is the most perfectly carnivorous. The molars, or grinders, of which there are ten in each jaw, are so called, because, from their size and figure, they are calculated for grinding the food. The canine and incisors have only one fang; but the three last grinders in the under jaw have constantly two fangs, and the same teeth in the upper jaw, three fangs. Sometimes these fangs are divided into two points near their base. The grinders likewise differ from each other in appearance. The last grinder is shorter and smaller than the rest, and from its coming through the gums later than the rest, and sometimes not appearing till late in life, is called wisdom-tooth. The variation in the number of teeth usually depends on these wisdom-teeth.

The danger to which children are exposed during the time of dentition, arises from the pressure of the teeth on the gum, so as to irritate it, and excite pain and inflammation. The effect of this irritation is, that the gum wastes, and becomes gradually thinner at this part, till, at length, the tooth protrudes. In such cases, therefore, we may, with great propriety, assist nature by cutting the gum. These teeth are twenty in number, and are called temporary or milk teeth, because they are all shed between the age of seven and fourteen, and are supplied by others of a firmer texture, with large fangs, which remain till they become affected by disease, or fall out in old age, and are therefore called the permanent, or adult teeth. Besides these twenty teeth, which succeed the temporary ones, there are twelve others to be added to make up the number thirty-two. These twelve are three grinders on each side in both jaws; and in order to make room for this addition, we find the jaws grow as the teeth grow, so that they appear as completely filled with twenty teeth, as they are afterwards with thirty-two. Hence, in children, the face is flatter and rounder than in adults. The *dentes sapientiæ*, or wisdom-teeth, do not pass through the gum till between the age of twenty and thirty. They have, in some instances, been cut at the age of forty, fifty, sixty, and even eighty years; and sometimes do not appear at all. Sometimes, likewise, a third set of teeth appears, about the age of sixty or seventy.

The teeth are subject to a variety of accidents. Sometimes the gums become so affected as to occasion them to fall out; and the teeth themselves are frequently rendered carious by causes which have not hitherto been satisfactorily explained. The disease usually begins on that side of the tooth which is not exposed to pressure, and gradually advances till an opening is made into the cavity: as soon as the cavity is exposed, the tooth becomes liable to considerable pain, from the air coming into contact with the nerve. The enamel of the teeth, as we have already said, is very hard, but liable to be cracked by the pressure of very hard substances, or by exposure to great heat or cold, and, more peculiarly, by sudden changes from one to the other. The bony substance below, being thus exposed, begins to decay; the nerve and blood-vessels are at length laid bare, and toothache ensues. Rheumatism, gout, and venereal disorders exert a very prejudicial influence on the teeth. To preserve the teeth, we must guard against too hot or too cold drinks; violent changes of temperature; biting of very hard substances, as in cracking nuts, also biting off threads, and untying knots with the teeth, as the former injures the enamel, the latter tends to loosen the teeth in their sockets. Acids, of all sorts, particularly the stronger ones, injure the enamel. Therefore, all tooth-washes which contain them are eventually prejudicial to the teeth, although the immediate effect is to clean and whiten them. Rough-pointed substances also injure the enamel, so that we should avoid the use of metallic tooth-picks, and tooth-powder made of pumice stone, coral, cream of tartar, &c. People who eat much meat and little bread, or have a bad digestion, or smoke tobacco, find that a deposit of earthy particles collects around the teeth, and forms tartar, particularly about the parts which are least exposed to the action of the food—the lower and inner parts, near the gums. The gums gradually separate from the teeth; the consequence is, that these decay, and the breath is rendered offensive. To avoid these effects, the teeth should be daily cleaned with tepid water and a hard brush. A proper powder should also be occasionally applied to them. Where tartar has been formed, it should be removed by the dentist, and its return carefully guarded against. Decay can often be checked by the removal of the parts which have turned black, and filling the cavity with gold, so that the teeth may be preserved for many years or for life. Every one should have his teeth examined at intervals of a few months, to detect incipient decay.

Artificial teeth are often inserted to remedy, as far as possible, the loss of the natural ones. These were formerly taken from the corpses of healthy men (though this point of healthiness was often far too little attended to); they are

now, more generally, prepared from the teeth of the walrus, or sea-cow, from ivory, from porcelain, &c. Artificial teeth are either secured in the stumps of natural ones, by means of a gold or silver support, or, where such stumps do not exist, they are fastened to neighbouring teeth by gold or silk thread. The porcelain teeth have an advantage over the other kinds, which lose their colour, and acquire a disagreeable smell in the course of time. Their hardness may perhaps, however, make them injurious to the contiguous natural teeth. Besides the accidental means by which the teeth are affected, old age seldom fails to bring with it sure and natural causes for their removal. The *alveoli* fill up, and the teeth consequently, fall out. The gums then no longer meet in the fore part of the mouth, the chin projects forwards, and, the face being rendered much shorter, the whole physiognomy appears considerably altered.

The great variety in the structure of the human teeth, fits us for a variety of food, and, when compared with the teeth given to other animals, may, in some measure, enable us to explain the nature of the aliment for which man is intended by nature. Thus in ruminating animals, we find incisors only in the lower jaw, for cutting the grass, and molars for grinding it; in graminivorous animals, we see molars alone: and in carnivorous animals, canine teeth for catching at their prey, and incisors and molars for cutting and dividing it. But as man is not designed to catch and kill his prey with his teeth, we observe that our canine are shaped differently from the fangs of beasts of prey, in whom we find them either longer than the rest of the teeth, or curved. The incisors, likewise, are sharper in those animals than in man. Nor are the molars in the human subject similar to the molars of carnivorous animals; they are flatter in man than in these animals; and in the latter, we likewise find them sharper at the edges, more calculated to cut and tear the food, and, by their greater strength, capable of breaking the bones of animals. From these circumstances, therefore, we may consider man as partaking of the nature of these different classes; as approaching more to the carnivorous than to the herbivorous tribe of animals; but upon the whole, formed for a mixed aliment, and fitted equally to live upon flesh and upon vegetables. Those philosophers, therefore, who would confine a man wholly to vegetable food, do not seem to have studied nature. As the molars are the last teeth that are formed, so they are usually the first that fall out. This would seem to prove that we require the same kind of aliment in old age as in infancy. Besides the use of the teeth in mastication, they likewise serve a secondary purpose, by assisting in the articulation of the voice. Albin, Hunter, Blake, Fox, and many others, have written on the teeth.

TEETHING OR DENTITION. One of the marked characters of the child at birth is the absence of teeth. This is a wise provision of nature; for, as the food of the infant requires no mastication, teeth are unnecessary, whilst their presence might be productive of irritation and injury to the nipple of the mother at commencement of suckling; and indeed even at a later period, when the nipples have in some degree become hardened and accustomed to suction, we not unfrequently find them suffer from the irritation produced by the presence of the first teeth. The teeth, therefore, during the first months of infant life are covered by the gums, and as dentition commences, they gradually push the gums before them, till, by the process of ulcerative absorption, they project through the gum.

The period at which teething commences is very variable, but, in general, the teeth begin to appear about the sixth or seventh month; not unfrequently, however, dentition begins much earlier, as the third or fourth month, whilst in other cases it does not take place till the end of the first year, and in some cases not till eighteen months after birth. The process, however, is commonly completed during the first year, or year and a half; although it is sometimes protracted beyond the second year.

The first set of teeth, or *milk teeth*, as they are termed, consists of twenty teeth, ten in the upper, and ten in the lower jaw. There is considerable regularity observable in the order in which the first teeth make their appearance; they generally appear in pairs, and those in the lower jaw usually come through the gums before those in the upper. The two middle incisors or front teeth appear first, next the two lateral incisors, then the anterior molars or grinders, next the canine or eye teeth, and last, the posterior or back grinders. Although the foregoing is the order in which the teeth usually appear, still it is subject to variation. In some cases, those of the upper appear before those of the lower jaw; or the eye teeth may appear before the anterior grinders. Sometimes there is a considerable interval between the appearance of one pair of teeth and the appearance of others; and many variations, which to mention would be merely to enumerate the exceptions to a general rule.

The milk teeth begin to fall out, or as it is termed, to be shed about the seventh year, and are replaced by the second set, or permanent teeth, which set is generally completed in from six to seven years. The permanent teeth are thirty-two in number, sixteen in each jaw. (See the preceding article, *Teeth.*) The cutting of the second set of teeth is seldom attended with pain or uneasiness; or when local irritation does occur, it is seldom attended with much general disturbance, for the constitution is now more

confirmed, and the peculiar irritability which rendered the infant so susceptible of disease no longer exists. In some instances, however, the appearance of the second teeth is attended with severe pain, and other local symptoms, requiring the free use of the scarificator to divide the gums; and at this period, also, great attention should be paid to the state of the mouth, so as to prevent the permanent teeth coming in irregularly: in some cases, for example, it becomes necessary to remove some of the early teeth, or even of the permanent teeth, so as to allow others to come forward in a proper position, or prevent the jaw being crowded.

With regard to the peculiarities and diseases attendant on infantile dentition, we cannot forbear laying before our readers the following excellent remarks, extracted from the able work of Drs Maunsell and Evanson on the diseases incident to childhood:—

'Dentition,' says Dr Evanson, 'is a natural process, and does not necessarily lead to diseased action; but such as is liable to occur in consequence of the irritability of the infant constitution, which is at this time particularly remarkable, as well as the proneness to sympathetic disturbance. Some irritation must attend the passage of the tooth through the gum; and this is caused both by the pressure of the crown of the tooth on the parts above, and of the roots on the dental nerves below. Hence arises pain; and to this we are to attribute, as a chief cause, the morbid sympathies that accompany dentition. . . .

'Certain symptoms must naturally accompany dentition, however favourably it may proceed; and the attendant determination of blood to the parts contribute to these. Saliva flows in increased quantity from the mouth, when a child is teething, and the gums are more or less swollen and hot. Thirst appears to be felt; for the child takes the breast more frequently, though for shorter periods than usual, dropping it, as if from the tender state of the gums—but the fingers, or whatever it can grasp, are often thrust into the mouth.

'The child is frequently fretful or peevish, and gets sudden fits of crying, or starts in its sleep, which is liable to be disturbed. The cheeks are occasionally flushed; and increased heat, or pulsation, may be felt about the head. A tendency often exists to disturbance of the stomach or bowels, the food being rejected; or slight diarrhæa attends. These symptoms are not to be looked upon as constituting disease; and some of them are obviously but indications of an increased activity in the process of ossification, as they often precede the appearance of the tooth by many weeks, but subside again in some days, from eight or ten to fourteen. This may be looked upon as the first stage of dentition; and is called in popular phraseology, "Breeding the teeth." The symptoms again occur, but in a somewhat modified form, when the tooth begins to approach the surface of the gum.

'The relation which subsists between dentition and disease, as arising directly therefrom, or merely complicated therewith, is most important; and upon a right understanding of this will depend our success in the management of children while teething. Whenever a child is ill about the time at which the teeth may appear, we should carefully examine the gums, to ascertain how far the symptoms may be connected with their state; and act accordingly. But attention is not to be confined exclusively to the gums, nor are we to rest satisfied with remedial means directed thereto. The illness may be merely an accidental complication, or, even if connected with teething, may require active treatment on its own account. In a word, neglect of the state of the gums may render our other treatment unavailing, or attention to this alone prove inadequate.

'Many of the symptoms caused by dentition are truly nervous; but inflammatory affections do often arise from, or are complicated with it. The local symptoms of irritation of the gums are at times severe; and here, in truth, lies the origin of all the others. Apthæ or ulceration may be present, and the cervical, or more usually the salivary glands, enlarged and tender, accompanied by a very profuse flow of saliva. The determination of blood may extend further, and engage the head, which will be hot and heavy; the cheeks red and swollen; and the eyes suffused and watery. Great thirst, heat of skin, restlessness and alternate heaviness, with disturbed sleep, or sudden startings therefrom, now attend. This symptomatic fever is remarkable for its suddenness and variableness, often recurring and remitting within a few hours. Distant organs soon become implicated in a marked manner, and suffer sympathetically, either from inflammatory disease, or mere nervous disturbance. . . .

'Some of these secondary affections appear to be rather of a salutary character, as if efforts of nature to afford relief by counter-irritation or derivation, as we see in the abundant flow of saliva and lax state of bowels so constantly attendant upon teething. Suddenly suppressing these is certainly dangerous, and so long as they retain their merely sympathetic character, little should be done to interfere; but we are by no means to fall into the popular error, that treatment for such is never to be adopted, and so allow children to die of purging or vomiting, because they are getting their teeth.'

Symptomatic disturbance of the brain frequently occurs, inducing restlessness or very disturbed sleep, accompanied with startings or sudden awakenings, the child screaming and

appearing frightened. If along with these symptoms there be grinding of the teeth, tremors of the body, and rapid motions of the lips, and if there be great heat of skin, and costiveness, we may dread convulsions taking place. Convulsions may depend on mere nervous excitement, and be confined to mere twitchings of limbs or face; but in no case are they to be neglected, for great danger attends when they become violent and frequent, and they are symptomatic of effusion into the cavities of the brain or at its base, giving rise to what is called water in the head. In other cases, death may occur suddenly during the convulsions; or incurable diseases, such as palsy or epilepsy, may be induced. The late Dr Hamilton, professor of midwifery in the university of Edinburgh, has described a peculiar affection of the larynx or windpipe, which also frequently occurs during dentition. 'It is,' says Dr H., 'a kind of convulsive stricture of the upper part of the windpipe, producing a peculiar crowing sound, as if from threatening suffocation. This affection is quite momentary, and generally happens on awakening from sleep, on taking food or drink, or on the infant being teazed or irritated. Sometimes the fits are redoubled, but more often they are single. The disease is unaccompanied by fever, or any material derangement of the general health. When cough attends, which is not always the case, it is not hoarse, and the breathing during the intervals is perfectly free. Those circumstances distinguish it from the croup, which it resembles in the crowing sound. The event to be dreaded is sudden suffocation, or a severe convulsion, from which the infant cannot be recovered. In several cases this has happened at the distance of many months from the first attack, and after the infant had seemed almost perfectly relieved from the disease.'

Eruptions and other skin diseases frequently occur during teething; but it is very doubtful how far they depend directly upon it, although we do occasionally find them improve rapidly when the local cause of irritation is relieved.

Affections of the glands of the neck also arise during dentition, and the relation of such glandular swellings to the local irritation caused by the teeth can be readily enough understood; at the same time, such chronic swellings are perhaps as frequently dependent on the debility induced by teething, as by the local irritation.

But by far the most frequent symptomatic affections attendant on the process of dentition are those of the stomach and bowels. These affections are generally marked by purging or vomiting. The looseness is unaccompanied by pain on pressure, the tongue is moist and white, and the appetite remains unimpaired. Acidity, flatulence, and griping, however, frequently attend; then the stools are greenish and slimy, and smell sour. The symptom of vomiting is also often present, sometimes in conjunction with the diarrhœa; at times the vomiting is merely symptomatic. But when both vomiting and purging are excessive, and occur together, the disease assumes a most formidable aspect, and often proves fatal, and requires active and decided treatment; but we should be cautious about interfering with the slight diarrhœa and vomiting which so frequently occur during teething, so long as the child's health is not much impaired thereby.

Treatment of infants during teething. When the process of teething proceeds favourably, but little interference is required. The child should be kept quiet and cool, especially the head; and this may be effected by frequently sponging the head with tepid vinegar and water, or cold water. Dr John Clarke recommends cold sponging the head daily, and the child should have the benefit of free air, the bowels should be kept gently open, and the food should be light and unstimulating; indeed, the less food the infant has, except the breast milk, the better. Exposure to cold or damp atmosphere should be carefully avoided; for, as we have already stated, the constitution is at this time highly predisposed to, or susceptible of, inflammatory complaints. Towards the completion of teething, the child usually is somewhat debilitated, and if there be no circumstances to contra-indicate it, the diet may be somewhat altered, allowing a little weak chicken broth, occasionally in addition to the breast. As regards the gums, so long as there is no very marked irritation, the less we meddle with them the better; but as nurses and others are generally anxious to do something, it is our duty to explain to them that there are two different states of the gums during dentition: the first, which we have already mentioned as the stage of 'Breeding of the teeth,' is characterized by great local pain and irritation, and hence it is improper in this stage to use corals or other hard articles for the infant to chew: all that should be done is simply to rub the tender gum gently with the finger moistened in cold water, or sugar and water, or if the part be much inflamed, and the child very fretful, slight scarifications may be had recourse to, not with the intention of cutting down upon the tooth, but simply to abstract blood from the part. The occasional use of the warm bath will be found highly beneficial here, and indeed in almost every stage of dentition, where there is great irritability conjoined with hot skin and other febrile symptoms. At a more advanced stage, when the tooth is coming through, when the redness is confined to the base of the gum, and when the part covering the tooth is stretched over it, and white like a vesicle, the mode of sensibility of the part seems altered, for the presence of hard bodies is enjoyed, and seems to afford relief

from the pain. This is the time for the use of corals, ivory-rings, and other gum sticks, as they are termed; but a hard crust of bread answers every useful purpose. When, during this stage, there is great fretfulness and irritation of the gums, or any constitutional disturbance, the local treatment is of very great importance; for by simply scarifying the gums at this period, so as to lay bare the tooth and relieve the tension of the gum, we may effectually prevent the supervention of serious or even fatal disease. For this purpose, the child's head is held firm, the mouth opened, and a crucial incision of this form × made fairly down upon the tooth with a gum lancet, dividing the superimposed gum completely till we hear the lancet grate upon the tooth; no fear need be entertained about bleeding; any little bleeding which follows is generally very beneficial. Nor is there any force in the absurd statement, that if the tooth does not come forward immediately, the incision will become hardened, and render its progress more difficult than before, for it is well known now that cicatrised parts are those most easily absorbed. This trifling operation, therefore, should never be neglected: it always saves the infant much suffering, and often wards off serious diseases.

The treatment of the diseases occurring during complicated dentition. These must be treated on the same principles which would guide us at other times, with this difference, that we must also attend, as above directed, to the local cause of irritation. The bowel complaint may be alleviated by small doses of calcined magnesia, either alone or combined with rhubarb, small doses of castor oil, and frictions over the abdomen with camphorated oil, and abstaining from giving the child farinaceous food; occasionally some simple carminative medicine may require to be given to relieve flatulence; in obstinate cases, chalk mixture, or even catechu mixture, may be requisite; but, as we have already warned our readers, we must be cautious in arresting diarrhœa during teething. Our limits will not permit us to enter into full details regarding either this or the head symptoms, but the general treatment of both these complaints will be found under the articles on *Diarrhœa*, *Tympany*, and *Hydrocephalus*. The only other disease attendant on dentition, the treatment of which we think necessary to give here, is the crowing disease, described by the late Professor Hamilton. In this disease, after attending to the state of the mouth, the plan of cure which has hitherto appeared of most use, is to open the bowels freely by means of varied purgatives, with which absorbent or antacid medicines are combined, to direct frictions over the throat and chest, with some stimulating liniment, sinapisms, or the liquid fly-blister to the chest, and the occasional use of the warm bath. Antispasmodic medicines, such as camphor, asafœtida, &c. have been given; but Professor H. states that he has found the empirical preparation, which is known by the name of Dalby's Carminative, to be preferable to any other, and he recommends it to be repeated every four or five hours according to the urgency of the symptoms. Change of air is of great importance, as in some cases it seems to have had the effect of arresting the progress of the disease at once.

TEMPERAMENTS: those individual peculiarities of organization, by which the manner of acting, feeling, and thinking of each person is permanently affected. The differences of sex, race, nation, family, and individual organization, operate upon the character of every individual from the moment of his birth; and the last mentioned is by no means the least important. The ancients distinguished four temperaments—the choleric or bilious, the phlegmatic, the melancholic, and the sanguineous, which derived their names from the supposed excess of one or other of the principal fluids of the human body—bile (χολη), phlegm, black bile (μελαινη, black, and χολη), and blood (*sanguis*). Modern writers have added the athletic temperament and the nervous temperament. The bilious or choleric temperament is accompanied with great susceptibility of feeling, quickness of perception, and vigour of action, and therefore indicates an elevated state of the organization: rapidity and strength, a lively imagination, violent passions, quickness of decision, combined with perseverance and inflexibility of purpose, with a tendency to ambition, pride, and anger, but also to magnanimity and generosity of sentiment, characterize the bilious man. These moral characteristics are combined with a form more remarkable for firmness than grace, a dark or sallow complexion, sparkling eyes, and great muscular force. 'These men,' says an ingenious writer (Am. Quarterly Rev. for March, 1829), 'are urged by a constant restlessness to action; a habitual sentiment of disquietude allows them no peace but in the tumult of business; the hours of crowded life are the only ones they value; they are to be found wherever hardiness of resolution, prompt decision, and permanence of enterprise, are required.' The phlegmatic, lymphatic, or cold-blooded temperament is the reverse of that last described: with little propensity to action, and little sensibility; no great bodily strength or dexterity; rather a heavy look; the feelings calm; the understanding clear in a certain range, but never soaring into new regions, or penetrating deeply beneath the mysteries of the universe; and a disposition to repose or to moderate exertion,—the phlegmatic man is free from excesses, and his virtues and vices are stamped with mediocrity. The sanguineous temperament indicates a lively susceptibility, with little proneness to action;

promptness, without perseverance; a ready fancy; little depth of feeling, or thought; changeable, but not violent feelings and passions; and a tendency to voluptuousness, levity, fickleness of purpose, and fondness of admiration. The sanguineous are distinguished for beauty and grace, and the whole organization is characterized by the vigour and facility of its functions: they are the witty, the elegant, the gay, the ornaments of society. The melancholic temperament is characterized by little susceptibility, but great energy of action, reserve, firmness of purpose, perseverance, deep reflection, constancy of feeling, and an inclination to gloominess, to ascetic practices, and to misanthropy. The athletic temperament possesses, in some degree, the qualities of the sanguineous; but it is distinguished by superior strength and size of body, indicating the excess of the muscular force over the sensitive. The athletic man has less playfulness of mind, less activity of spirit, little elevation of purpose or fixedness of character; he is good natured, but if excited, ferocious. The nervous temperament admits of the most various modifications; it is characterized by the predominance of the sensitive part of the system, and the powerful action of the nerves. The mind is active and volatile, though not from fickleness, but from the rapidity of its associations, the quickness of its resolutions, and the readiness of its combinations. The temperaments are rarely found unmixed, as we have described them; but one or the other is usually predominant. Each has its advantages and pleasures, attended with some corresponding drawback.

TEMPORAL ARTERY. This is one of the terminal branches of the external carotid artery. It passes up in front of the ear and on reaching the temple divides into two branches, one passing backward, and the other forward. The anterior branch sometimes requires to be opened to abstract blood, as described in the article on blood-letting. See *Blood-letting and Plate of Blood-vessels.*

TENDONS. The white, glistening, fibrous extremities of muscles, by which they are attached to the bones. Tendons present many varieties in appearance, some being narrow and cord-like, as those at the ankle and wrist, others broad and strap-like.

Wounds of tendinous parts, particularly lacerated wounds, do not heal readily; for the tendons are endowed with but little vitality, and hence the reparative process of adhesion does not generally take place. Such wounds generally suppurate and the tendons not unfrequently slough.

TENESMUS. A frequent desire to evacuate the bowels without any discharge. This is accompanied with violent straining and bearing down pain, and frequently with prolapsus or falling down of the gut. Tenesmus is a constant and distressing symptom in dysentery and other diseases of the large intestine, irritation of the lower part of the rectum, as from piles, fismus, worms, fistulæ, and the effects of drastic purgatives, &c. When we wish to allay this symptom after the intestinal canal has been cleared by means of castor oil, or some other mild laxative, the best remedy is either an opiate suppository or a small starch enema containing opium in some form. The compound powder of ipecacuanha, in doses of five grains, repeated every three or four hours if necessary, is also a valuable remedy where the irritability of the rectum is so great as to prevent enemata being retained.

TENT. A small piece of linen, lint, or sponge placed in a wound for the purpose of preventing it closing too rapidly. Thus in opening deep-seated abscesses, we place a small slip of lint between the edges of the incision to prevent the superficial parts closing before the cavity of the abscess had filled up by granulation, which would obstruct the free exit of matter and give rise to the formation of sinuses, and for the same purpose we dress sinuses after opening them by placing a small portion of lint in the bottom of the wound, to cause them to heal from the bottom by granulation.

The term, however, was originally used to signify a piece of lint, or sponge, rolled up for distending and dilating wounds and sinuses, &c., but for this purpose tents are seldom now used.

TERTIAN AGUE. An ague in which forty-eight hours intervene between the commencement of one attack and the occurrence of another; the second attack thus taking place on the third day. See *Ague.*

TESTICLES. Two oval glandular bodies which secrete the semen in the male. The testicles are placed in the scrotum, and the secreting vessels composing the body of the gland are invested by a dense fibrous membrane, the *tunica albuginea.* Each testicle is composed of number of small vessels bent in a serpentine direction, and convoluted into little heaps, which are separated from each other by membranous partitions. In each partition there is a duct which receives the semen elaborated in the smaller vessels; and all these ducts constitute a network which is attached to the tunica albuginea. From this network twenty or more vessels arise, all of which are variously contorted, and being reflected, ascend to the posterior margin of the testicle, where they unite to form one common duct, which is bent into serpentine windings, forming a hard body, which has received the name of *epididymis.* From this there proceeds a long duct named the *vas deferens,* which ascending enters the lower part of the abdomen by what is termed the inguinal canal, and then passes down into the pelvis, attaching itself to the

side of the bladder and finally opens into the prostatic portion of the urethra.

TESTICLE, INFLAMMATION OF, or SWELLED TESTICLE. This disease may be brought on by violent exercise during inflammation of the urethra, sudden suppression of gonorrheal discharge, from the imprudent use of stimulating and astringent injections, or the use of bougies, debauchery of any kind, during inflammatory gonorrhæa, or from direct injury of the testicle itself, as from blows, &c.

Pain and swelling occur generally at first along the chord and epididymis, and the body of the testicle soon becomes affected. The pain is most violent and excruciating, attended with nausea, headache, and generally a great degree of general fever; the violence of the pain is owing to the unyielding nature of the investing membrane of the testicle preventing the vessels relieving themselves by effusion, and at the same time causing compression of the enlarging gland. Effusion however takes place into the serous envelope of the testicle, and thereby the size of the swelling is increased; the body of the testicle, however, is also enlarged, and the epididymis often remains so during the rest of the patient's lifetime. As the inflammation goes on it is attended by violent fever, sickness, pains stretching along the chord to the loins and down the thighs; there is great thirst, and violent pain in the lower part of the abdomen, similar to that in inflammation of the bowels. In general there is also frequent desire to pass water, and the urine is scanty, very high coloured, and deposits a large quantity of lateritious sediment; in fact, along with violent local pain there is conjoined the most aggravated form of irritative fever. When the inflammatory action is intense, or allowed to proceed unchecked by active measures during the first stage, the effusion into the substance of the gland is great, and there is no small risk of suppuration of the testicle occurring; and indeed in persons of scrofulous or infirm constitutions, suppuration is not an unfrequent though generally a remote consequence of this disease. The testicle is said to be rendered useless by this disease. It is certainly in danger of having its functions destroyed, if great effusion and permanent enlargement or condensation of the gland take place, but especially if suppuration and sinuses occur, and therefore the treatment at first requires to be active and judicious.

In the treatment, complete rest forms one of the principal points to be attended to, the inflamed organ must be supported, the patient confined to the recumbent position, and all means which may have been used for the purpose of arresting the gonorrhæal discharge must be given up. When the patient is robust or plethoric, or when there is a great degree of general excitement and fever, with a full hard pulse, general bleeding is advisable. And in every case, except the patient be very weak indeed, blood should be freely abstracted from the part, either by the application of a sufficient number of leeches, or by opening one or two of the veins of the scrotum, and then fomenting the parts with warm water cloths, or, what is better, by placing the testicle in a bowl of warm water. After the bleeding has stopped, the part should be enveloped in a warm poultice composed of the powdered hemlock, and as the hemlock is a very dry powder a considerable quantity of oil or lard is required in making this poultice; an excellent addition to this poultice is to boil about half a dram of opium in the water with which the hemlock powder is to be mixed, the poultice should be frequently renewed. When the pain is beginning to abate under this treatment, the testicle may be enveloped in two or three plies of thick lint previously saturated with a warm solution of sugar of lead and opium, and the whole covered with oiled silk to prevent evaporation; the wet lint requires to be renewed about every half hour. Cold applications are of very little service at any period of the disease, and are apt in some cases to do mischief. The bowels should be kept gently open by means of castor oil, or some other mild laxative, avoiding drastic purgatives, as these, by giving rise to irritation of the gut, are apt to aggravate the disease. Diluent drinks, containing occasionally carbonate of soda, should be given freely, and antimonials exhibited to diminish the force of the circulation, and cause diaphoresis. Where there is great pain and restlessness, opiates are indicated after the bowels have been freely evacuated, and the use of the warm hip bath is often highly serviceable in allaying the pain in the lower part of the belly and loins, and also the irritable state of the bladder, which, as we have already said, frequently accompanies this disease. When the violent symptoms have subsided, bathing the part with a lukewarm solution of sal ammoniac is often useful, and at a still latter period, when merely the chronic swelling remains, frictions with soap liniment, combined with a small proportion of iodine, will be found useful in discussing it. When this chronic state continues obstinate, the use of iodine internally is also indicated, and much relief is often experienced from interposing between the scrotum and suspensory bandage a soap plaster, or one composed of equal parts of gum and mercurial plasters; thereby the organ is defended from irritating friction and motion, and a slight but continued degree of stimulation is kept up. Sometimes fumigations with camphor or mercury are required, to discuss obstinate indolent swelling of the gland. Blisters are also used for the same purpose, and though annoying to the patient and requiring repetition, are generally effectual; perhaps the complete rest required

during their use is also of considerable benefit.

The testicle is also subject to a species of chronic enlargement, which occurs in constitutions which have been injured by intemperance and over-excitement, and not unfrequently in persons who have taken mercury in large quantities for syphilitic complaints, and it is also frequently dependent on neglected stricture of urethra. Sir Astley Cooper, in describing this form of disease of the testicle, says, "It often happens that a person consults a surgeon under the following circumstances. He comes to you with considerable enlargement of his testicle, which feels extremely hard, and which you might suppose at once to be schirrous, (or in the first stage of cancer). Upon inquiring whether he has any other complaint, he will tell you that he has occasionally had symptoms of a syphilitic kind. Whether he has taken mercury? Oh, yes, he will say, a good deal, and probably the disease began whilst he was taking mercury. Whether he has any disease of the urethra? He will perhaps say he has some stricture, or he may say that he has no obstruction whatever. Having made these inquiries, and received such answers, you may say to the party, "Follow my advice implicitly, sir, and I promise you that this enlargement of the testicle shall be removed, and in the course of a few weeks you will be quite well. He will be delighted at hearing this, or he may be disposed to doubt whether you will be able to succeed. You must, in the first place, strictly enjoin him to keep the recumbent posture; without strict adherence to this, it will be impossible to effect his cure; it is absolutely essential to his recovery. You must apply leeches and evaporating lotions to the part, and desire him to take three, or even five grains of calomel with opium night and morning. If he does this, the enlargement of the testicle will subside in the course of a few weeks. This disease is of a similar nature with that which attacks the eye, which has been called iritis, and requires the same mode of treatment." With regard to the advice given by the eminent surgeon we have just quoted, we must remark to our readers, that at the time when he delivered these lectures, the active and powerful preparations of iodine, now in use, were but little known or exhibited, and it will be found that in many cases, iodine, given in sufficient doses internally, commencing perhaps with three or four grains of the hydriodate of potass, combined with some bitter infusion, twice a day, and the use of iodine liniments externally, and the other means already enumerated when speaking of the discussion of the enlargement consequent on acute inflammation of the gland, will be found to answer better, and to be a safer plan of treatment, than the mercurial plan.

The other diseases attacking the testicle are, schirrus and fungoid disease of the gland, irritable testicle, and hydrocele; which last, however, is rather a disease of the serous covering of the testicle.

True schirrus is, comparatively speaking, a rare disease in the testicle. It begins in the body of the testicle, and feels as if a body of a stony hardness was situated in the gland; the testicle then becomes generally hard and tuberculated on its surface, violent darting and lancinating pains are felt down the thighs and in the part, with dull aching pain in the loins. The countenance, as in cancer, in other parts is very indicative of malignant disease, the skin is of a pale greenish yellow appearance, the eyes sunk, and there are cold clammy sweats, and other symptoms of hectic. The spermatic chord becomes hard, knotted, and swollen, and the glands in the groin also soon become affected. The only remedy in this disease is the early removal of the testicle before the chord or neighbouring glands become contaminated; for after that has taken place, and the constitution be affected, the operation is of no avail, as the disease would be reproduced. In such hopeless cases all we can do for the unfortunate patient is to mitigate his sufferings by means of palliative remedies, such as opiates and anodynes, and soothing applications to the part, such as hemlock poultices, and similar palliative remedies.

The fungoid disease of the testicle is much more common than schirrus. It begins, like it, in the body of the gland; but, unlike that disease, it almost immediately affects the whole body of the testicle, and spreads rapidly to the epididymis and chord.

At first the pain is trifling, but when, from the weight and size of the tumor, the chord becomes stretched, the pain becomes very great, although not of the sharp lancinating nature occurring in schirrous disease. The swelling is soft and pulpy, often so soft that it might be supposed to be a collection of fluid, and indeed has sometimes been mistaken either for hydrocele or a collection of pus, and punctured to allow the supposed fluid to escape. It may however be distinguished from hydrocele by its being more flattened on the sides, and round on the forepart, whilst hydrocele is an equal pyriform tumour, elastic, and fluctuating distinctly to the touch, and transparent, so as to transmit the rays of light, so that by holding a candle behind the scrotum we obtain a pretty certain mark to guide us in forming our diagnosis of the case. The cure of this malignant disease, like that of true schirrus, is the removal of the testicle at an early period, and one of our principal reasons for entering so particularly on these diseases is, to put on their guard persons who may unfortunately become the subjects of such diseases, so that they may apply early for surgical advice. The irritable testicle, as it is called, is a very

formidable disease, although not what is termed of a malignant nature; that is to say, it does not contaminate the constitution. The principal symptom is violent pain, rendered still more excruciating by the slightest touch, so that the patient has scarcely any ease, place himself in what posture he will, and the general health suffers from the irritative fever kept up by the constant and excruciating pain, and he is totally incapacitated from pursuing any business or occupation whatever. A great variety of remedies have been used, but in general the disease resists all curative measures, except removal of the affected testicle; an operation to which the patient, worn out by constant suffering, is usually very ready to submit.

Hydrocele, as we have already stated, is not a disease of the testicle itself, but of the serous membrane (*tunica vaginalis*) which invests that body. This disease consists in an accumulation of serous or watery fluid in the cavity of the serous covering of the testicle, giving rise to a fluctuating swelling of the scrotum. This disease may be the result of inflammation of the testicle itself, as already stated, from the inflammation spreading to the contiguous textures; or it may arise from acute or chronic inflammation of the *tunica vaginalis* itself, ending in effusion of serum into its cavity; or it may be owing to a lost balance between the exhalent and absorbent vessels of the part, that is to say, the exhalents in consequence of excited action may effuse more serous fluid than usual, and therefore more than will be readily removed by the ordinary process of absorption; or the exhaled fluid may be in natural quantity, but allowed to accumulate, in consequence of want of action in the absorbent vessels of the part. However it may arise, the symptoms which mark the complaint are first weight and slight uneasiness, and the gradual formation of a pear-shaped swelling, which is elastic and fluctuating to the touch, and its nature is rendered more evident by placing a lighted taper behind the swelling, so as to show its transparency. By these symptoms, and by the swelling commencing from below, and from the position of the testicle, which in general can be felt at the back part of the tumor, we readily distinguish the disease from hernia. In some cases, where there is much thickening of the scrotum, the transparency is lost, and this may in some degree render the diagnosis a little more difficult, but the history and other symptoms will generally suffice to satisfy us as to the nature of the case. The treatment may either be radical or palliative. The palliative treatment consists in drawing off the fluid with a trocar and canula from time to time as it accumulates; and in young persons, this plan, combined with support to the parts and gentle stimulating frictions, frequently succeeds in preventing a return of the accumulation; we are also obliged to adopt this plan where there is any disease of the body of the testicle, as the method requisite for a radical cure of the hydrocele might aggravate the disease of the testicle.

The radical cure consists in injecting some stimulating fluid, such as claret or port-wine, or a solution of sulphate of zinc in water, or diluted tincture of iodine, into the cavity of the tunica vaginalis, after having first drawn off the water, as in the palliative treatment; the object is either to cause such a degree of incited action as will give rise to increased action of the absorbents, and so restore the lost balance between them and the exhalent vessels; or to give rise to a degree of inflammation, and so cause adhesion of the opposed surfaces of the serous membrane, and consequently obliteration of its cavity.

TETANUS. This is a disease of the nervous system generally depending on some wound or other external injury; and, although fortunately but little known in this country, is of very frequent occurrence in warm climates. It is a disease attended with rigid spasmodic contraction of the voluntary muscles: in some cases all the voluntary muscles of the body are involved, in others the upper part of it only, and in some cases it is confined to a certain class of muscles. When those muscles which are placed on the fore part of the body are affected, so that the body is bent forwards, the disease is named *emprosthotonos;* and when the body is bent backwards, from the opposite set of muscles being affected, it is then named *opisthotonos*. The term tetanus is more properly applied to that form of the disease where both classes of muscles are spasmodically contracted, so that they antagonize and balance each other, the body being kept rigid and straight, and the patient being unable to move himself in any direction

Tetanus is usually divided into two kinds: 1st. *Traumatic*, or that form arising from wounds or other external injuries. 2d. *Idiopathic* tetanus, or that arising from internal causes, or without any visible cause, as from effects of atmospheric changes, &c.

In warm climates, as we have already stated, the disease is of very frequent occurrence. It sometimes supervenes in children, and even in adults, on the slightest excoriations or scratch. It is chiefly induced, however, by punctured or lacerated wounds, with wound or partial division of a nerve or nervous filament, by the presence of irritating foreign bodies, such as splinters of wood, prickles of shrubs, and similar injuries. But although these are the most common causes, yet it not unfrequently follows clean incised wounds, such as those made in amputation or bleeding; in amputation it may arise from some twig of a nerve having been included in the ligature along with an artery, and in bleeding

from the partial division of a nerve; but, in many cases, no such direct causes can be found. The idiopathic, or constitutional form, may arise from exposure to damp and changeable weather, from teething, intestinal worms, or causes of irritation in the intestinal canal. Whatever the exciting may be, the prominent features of the disease are much the same. It is generally ushered in with stiffness of the neck, accompanied by a peculiar shrunken and contracted appearance of the features; deglutition next becomes difficult, and the efforts to accomplish it are soon attended with violent spasmodic action of the muscles of the pharynx and œsophagus. The muscles of the lower jaw become rigid and spasmodically contracted, and this state continuing to increase, the mouth is at last completely and immovably shut: sometimes the disease affects this set of muscles alone, and then it is termed *Locked Jaw*. The muscles of the trunk and extremities next become affected, as the disease continues to progress; and there are violent spasms of particular sets of muscles, most frequently of those situated on the posterior part of the body, which is then bent violently backwards, so that it is wholly supported on two points only, viz. the back part of the head and the heels, constituting the form of the disease called *opisthotonos*. These symptoms do not continue constant, relaxation of the muscles occurs, and, for a time, the patient enjoys an intermission of the disease; but this is only temporary, for the painful spasms soon recur. One of the most distressing symptoms is the spasmodic affection of the diaphragm, impeding respiration and imparting a violent shock to the whole system. *Emprosthotonos*, or bending forwards of the body, sometimes takes place, but this is a less frequent form than that we have just described.

As the disease advances, all the symptoms become aggravated, the countenance becomes distorted, the spasms of the diaphragm more frequent and violent, and in one of these attacks the patient may die convulsed; the general spasmodic contraction of the voluntary muscles also becomes more violent, and the intermissions are less frequent and of shorter duration. In all cases the bowels are much constipated.

In many cases, the patient, though wasted and worn out by the disease, is sensible to the last, and the circulation is often but little affected; in general, the fatal termination takes place from the fourth to the sixth day of the attack, although, in some rare cases, the disease has been protracted from fifteen to twenty days.

The pathology of this disease is as yet but little understood; examination of the bodies of persons who have died of it has occasionally shown evident marks of inflammation of the spinal cord and its membranes, or congestion of the vessels of these parts, and also marks of violent inflammatory action in the pharynx, œsophagus, and larynx, in cases where violent spasm and painful deglutition had existed during the progress of the disease; but in many other equally well marked cases, no such appearances have been observed, so that it cannot be asserted that the disease depends upon affections of these parts, although, in some cases, they co-exist. Yet there can be little hesitation felt in referring the disease to some affection of the nervous system.

Treatment. This is one of the most untractable diseases which a medical man is called on to treat, and one from which the patient has but very slight chance of recovery. In the acute form there is scarcely time for remedies to take effect, and it is difficult, often impossible, to give internal medicines, owing to the locked jaw and difficulty of swallowing. All sources of irritation must, of course, be removed as far as that is practicable; splinters should be extracted; if in a wound a nerve be wounded or lacerated, it should be completely divided; and in cases of lacerations, removal of the injured parts by amputation has in some cases been practised with success, when done early in the disease; and in all wounds or excoriations, the application of emollient poultices, containing opium, to the part is of great service in allaying the pain and irritation. If the patient be robust, general bleeding may be used with great advantage; and if the propriety of general bleeding be doubtful, local bleeding by means of cupping or leeching along the spine should always be employed. Stimulating enemata and powerful purgatives should be given so as to procure free evacuations, and then calomel combined with opium should be exhibited so as to affect the system, or mercurial frictions may be employed for the same purpose; and if the spasms continue very violent, opium combined with camphor should also be given to allay them, if possible. Some writers recommend the cold affusion or immersion to check the progress of this desperate disease; others, the warm bath till faintness is produced: we should consider the warm bath as the safer remedy, and more likely to be of service in relieving the spasmodic contractions Tobacco injections have also been found serviceable, but the use of that narcotic is attended with effects so uncertain and dangerous, that we would never recommend it except where a professional person was in attendance. There is a form of this disease in warm climates which is particularly fatal to infants, and hence has been named the locked jaw of infants, (*trismus nascentium.*) It seems to be dependent on irritation caused by the separation of the navel string, and owing to the fact that the dressing of the children was at one time entrusted to the old negresses, who used a number of absurd irritating dressings. Nearly one-third of the slave chil-

dren died of this disease: but now that attention has been given to this point, and the nurses better instructed, and light dressings or emollient poultices used, the disease is comparatively very rare. By means of the remedies we have described, tetanus has in some cases been arrested, but, in general, it proceeds unabated to a fatal termination in spite of the most judicious and active treatment.

TETTER. This is a disease of the skin, and exists under two distinct forms, viz. the *dry or scaly tetter*, or *Psoriasis* of medical writers, and the *humid or running tetter*, or *Impetigo*.

I. According to Bateman, 'Psoriasis or scaly tetter occurs under a considerable variety of forms, exhibiting, in common with lepra, more or less roughness and scaliness of the cuticles with redness underneath. It differs, however, from lepra in several respects. Sometimes the eruption is diffuse and continuous, and sometimes in separate patches of various sizes; but these are of an irregular figure, without the elevated border, the inflamed margin, and the oval or circular outline of the leprous patches: the surface under the scales is likewise much more tender and irritable in general than in lepra; and the skin is often divided by rhagades, or deep fissures.' The late Dr Mackintosh of Edinburgh was disposed to regard this form of tetter merely as an aggravated form of lepra, and not as a distinct disease; he says, 'It is to be regarded in every respect, pathologically speaking, as a similar disease to lepra. I have seen eruption leprous in one part of the limb, and psoriatic in another, particularly between the fingers and at the flexures of the joints. I have also seen lepra converted into psoriasis by bad management, and particularly by the application of irritating substances to the diseased parts; I have also frequently changed psoriasis into lepra by general bleeding, thereby mitigating the local inflammation. From all the facts which my experience has enabled me to collect, I cannot help regarding psoriasis as an aggravated form of lepra; and by treating it upon corresponding principles, I have been very successful in curing the affection.'

This disease generally arises from derangement of the digestive organs, or from long continuance in some particular article of diet, such as fish, or aliments of a stimulating nature, and not unfrequently from an exclusively farinaceous diet; indeed, so dependent are most skin diseases upon the function of digestion, or irritation of the digestive organs, that our first attentions should be directed towards these organs, and the plan of diet varied according as it suits the particular patient, or his symptoms during the course of the disease. It not unfrequently occurs also in persons of a plethoric habit of body, and in them it is sometimes attended with considerable constitutional disturbance, and a degree of fever.

Treatment. If the eruption appears suddenly, and over a considerable portion of the body or extremities, and if there be a degree of fever or constitutional disturbance, a moderate antiphlogistic treatment is indicated. If the patient be of a plethoric habit, and if there be much redness and irritability of the skin under the scaly patches, then a moderate general bleeding will often be found highly serviceable in this acute stage, if not contra-indicated by other symptoms; at the same time, and in every case, attention should be directed towards the digestive organs, the bowels should be acted on by means of a calomel purge, and in some cases it is well to combine the calomel with a dose of James' powder, for the purpose of producing free perspiration, and for the same purpose, as well as for a local application to the eruption, the warm or tepid bath will be found highly useful. After the calomel has acted once or twice, some gentle saline purgative may be exhibited, and then the bowels are to be kept gently open by means of some alterative laxative, such as the combination of colocynth, and blue pill we have so often mentioned, exhibited occasionally. The diet during the acute stage in persons of plethoric habit should be spare and easy of digestion; and we should always keep in mind that the same articles of diet which may have been useful in one case may be quite the reverse in another case, so that we must notice in each individual case what articles of food seem to agree or disagree with our patient, and prescribe accordingly. As a general rule, a diet consisting of a small quantity of some light animal soup, or a small quantity of solid animal food, with a moderate proportion of fresh vegetables, will be found to answer best, whilst large quantities of slops or farinaceous food are generally found to be hurtful. As regards local applications, the use of warm or tepid bathing is perhaps the best, or lint dipt in tepid water applied over the parts and frequently changed; stimulating applications should not be employed during the acute stage of the eruption, but a weak solution of sugar of lead, combined with opium, may often be employed with advantage, applied in the same way as the warm water and lint, only covering the whole with oiled silk. In some cases, dusting the part frequently with fine hair powder has been found to allay the painful feelings. When the acute stage of the eruption is past, sulphurous baths, or cloths dipt in Harrowgate water, may be used with great advantage; and a moderate use of the Harrowgate sulphuretted water internally will also be found useful in this form of the disease, as will also the exhibition of bi-carbonate of potash, with columba or some other tonic. The itching may be alleviated by means of bath-

ing with tepid water, or milk and water, or the application of cold cream to the part.

II. *Humid or running tetter* is a non-contagious pustular affection of the skin, terminating either in thick scabs, or thin scaly crusts. Although several species of this disease are described by writers on skin diseases, there are only two to which we consider it useful to direct the attention of the domestic practitioner. The one, simple tetter, unaccompanied by febrile symptoms; the other, named erysipelatous tetter, in which the eruption is generally preceded by a considerable degree of fever.

The first of these species, or simple running tetter, commences generally without any constitutional disturbance, and may be regarded as a pustular eruption; the pustules are small, irregularly circumscribed, with a slight elevation of the cuticle, and terminating in scabs. This eruption is produced and accompanied by active inflammation and considerable irritation of the parts affected, but these eventually terminate in a chronic action of the vessels of the part affected. In the most general and simple form of the disease, which chiefly attacks the young and those of lymphatic temperament, the eruption appears in the form of clusters and groups of irregular and slightly elevated small pustules, which, after discharging their contents, continue to exude a thin, acrid, serous fluid, accompanied with much itching, or rather stinging, and a sensation of heat.

The discharge gradually forms into thin yellowish semi-transparent scabs, which turn up at the edges, thus allowing the discharge to ooze from under them. Frequently the disease becomes chronic, successive eruptions of the clusters of pustules appearing as others decay. When the eruption is a large or circumscribed oval, or some other regular figure, the disease is named figured tetter; and when scattered in several small groups of no regular shape, it is named scattered. When the part affected is covered with one large continuous crust, it is named scabbed.

At first the pustules are small red spots, and itch very much; they soon, however, begin to enlarge and become pustular. The pustules are flat and are attended with heat and stinging pain; in a few days they burst and discharge their contents, and then their crusts form, and the thin discharge begins to ooze out. This disease frequently appears on the cheeks, sides of nose, margins of the nostrils, and the extremities, particularly the hands are frequently the seat of this eruption, and it also occurs occasionally on the trunk.

The causes of this form of eruption are various and often very obscure; sometimes it appears in persons who have suffered long from stomach complaints, and frequently after mental depression, violent exercise, and exposure to sudden changes of temperature. Some external applications, such as alkalies, lime, raw sugar, pepper, often produce this eruption on the hands of persons who are constantly working with these articles.

Even though the cause be decidedly local, if the disease be fairly established, constitutional treatment will be of much avail in such cases. Careful avoidance of the original cause, tepid bathing, gentle laxatives, and the use of antimonial remedies, and occasional doses of sulphur and cream of tartar, and abstaining from irritating the parts by scratching or roughly removing the scabs, together with attention to diet, will be found the best measures to employ in the acute stage. When the disease has assumed a more chronic character, stimulating and astringent washes, as weak solution of the sulphates of zinc or iron, or of the acetate of lead, or nitrate of silver, may be used; and the use of sulphuretted waters, as the Harrowgate, will be found of essential service at every period of the disease, but more particularly so in the chronic stage, combined with sulphuretted baths, such as the Barége water bath, or the sulphur fumigating baths, or sponging the parts with the Harrowgate water.

The second distinct species of running tetter, or the erysipelatous, at its commencement very closely resembles an attack of erysipelas or rose. There are shiverings, followed by heat of skin, foul taste in the mouth; in other words, the disease is ushered in by a degree of general fever. These febrile symptoms are followed by an edematous swelling of the eyelids, and puffiness of the whole face, which are the parts the disease most generally attacks. On examination with the finger, the inflamed surface is found to be papular, that is, the surface feels raised; and on the second or third day of the disease the pustules begin to appear; these soon break and discharge a thin, hot, and acrid fluid, which frequently excoriates the sound skin in the neighbourhood. The eruption often spreads over the whole face and neck, new clusters of pustules appearing between the interstices of the scabs of the previous clusters; and this form of the eruption is also attended with the same heat and intolerable itching which accompany the simple form of the disease. The treatment of this species of impetigo or tetter requires at first antiphlogistic measures, in some cases even general bleeding may be used with great advantage; but, in general, saline purgatives, with antimonials and nitre, are generally sufficient to alleviate the febrile symptoms, and the use of some of the mineral acids, combined with decoction of sarsaparilla, will be found of great service, and the only local application required is frequent tepid bathing, or the application of warm water lint. In the after stages the use of cinchona bark decoction with acids will be

found useful, combined with the other means already mentioned when treating of the chronic form of the simple species.

Both forms of the disease are of uncertain duration; sometimes they continue for two or three months, and when they disappear they leave the skin dry, red, and shining, and the part which has been the seat of the disease requires to be protected as far as possible from the effects of cold or damp weather.

THEBAIC TINCTURE. The name formerly in use for laudanum and the wine of opium, which see.

THERAPEUTICS. That part of medicine which teaches the method of curing diseases. It treats of the symptoms of disease, and the conclusions to be drawn from them, of the power of nature, and how far it may be relied on, of the mode of cure to be adopted, and the different systems which have acquired reputation.

THERMOMETER. An instrument for measuring heat, founded on the principle that the expansions of matter are proportional to the augmentations of temperature. With regard to aeriform bodies, this principle is probably well founded; and hence our common thermometers may be rendered just by reducing their indications to those of an air thermometer. Solids, and still more liquids, expand unequally, by equal increments of heat, or intervals of temperature. With regard to water, alcohol, and oils, this inequality is so considerable as to occasion their rejection for purposes of exact thermometry. But mercury approaches more to solids than ordinary liquids in its rate of expansion, and hence, as well as from its remaining liquid through a long range of temperature, is justly preferred to the above substances for thermometric purposes. A common thermometer, therefore, is merely a vessel in which very minute expansions of mercury may be rendered perceptible, and, by certain rules of graduation, be compared with expansions made on the same liquid by other observers. The first condition is fulfilled by connecting a narrow glass tube with a bulb of considerable capacity filled with mercury. As this fluid metal expands one sixty-third by being heated in glass vessels, from the melting point of ice to the boiling point of water, if ten inches of the tube have a capacity equal to one sixty-third of that of the bulb, it is evident that, should the liquid stand at the beginning of the tube at 32^0, it will rise up and occupy ten inches of it at 212^0. Hence, if the tube be uniform in its calibre, and the above space be divided into equal parts by an attached scale, then we shall have a centigrade or Fahrenheit's thermometer, according as the divisions are 100 or 180 in number. Such are the general principles of the construction of thermometers. The tubes drawn at glass-houses, for making thermometers, are all more or less irregular in the bore. Hence, if equal apparent expansions of the included mercury be taken to represent equal thermometric intervals, these equal expansions will occupy unequal spaces in an irregular tube. The attached scale should, therefore, correspond exactly to these tubular inequalities; or, if the scale be uniform in its divisions, we must be certain that the tube is absolutely uniform in its calibre. The first step in the formation of this instrument, therefore, is to graduate the tube into spaces of equal capacity. A small caoutchouc bag, with a stop-cock and nozzle, capable of admitting the end of the glass tube when it is wrapped round with a few folds of tissue paper, must be provided, as also pure mercury, and a sensible balance. Having expelled a little air from the bag, we dip the end of the attached glass tube into the mercury, and by the elastic expansion of the caoutchouc, we cause a small portion of the liquid to rise into the bore. We then shut the stop-cock, place the tube in a horizontal direction, and remove it from the bag. The column of mercury should not exceed half an inch in length. By gently inclining the tube, and tapping it with the finger, we bring the mercury to about a couple of inches from the end where we mean to make the bulb, and, with a file or diamond, mark there the initial line of the scale. The slip of ivory, brass, or paper, destined to receive the graduations, being laid on a table, we apply the tube to it so that the bottom of the column of mercury coincides with its lower edge. With a fine point, we then mark on the scale the other extremity of the mercurial column. Inclining the tube gently, and tapping it, we cause the liquid to flow along till its lower end is placed where the upper previously stood. We apply the tube to the scale, taking care to make its initial line correspond to the edge, as before. A new point for measuring equal capacity is now obtained. We thus proceed till the requisite length be graduated, and we then weigh the mercury with minute precision. The bulb is next formed at the enameller's blow-pipe, in the usual way. One of a cylindrical or conical shape is preferable to a sphere, both for strength and sensibility. We now ascertain and note down its weight. A tubular coil of paper is to be tied to the mouth of the tube, rising in a funnel-form an inch or two above it. Into this we pour recently boiled mercury, and, applying the gentle heat of a lamp to the bulb, we expel a portion of the air. On allowing the bulb to cool, a portion of the mercury will descend into it, corresponding to the quantity of air previously expelled. The bulb is now to be heated over the lamp till the included mercury boil briskly for some time. On removing it, the quicksilver will descend from the paper funnel, and completely fill the bulb and stem. Should any portion of air appear, the process of

heating or boiling must be repeated, with the precaution of keeping a column of superincumbent mercury in the paper funnel. When the temperature of the bulb has sunk to nearly that of boiling water, it may be immersed in ice-water. The funnel and its mercury are then to be removed, and the bulb is to be plunged into boiling water. About one sixty-third of the mercury will now be expelled. On cooling the instrument again in melting ice, the zero point of the centigrade scale, corresponding to 32^0 of Fahrenheit, will be indicated by the top of the mercurial column. This point must be noted with a scratch on the glass, or else by a mark on the prepared scale. We then weigh the whole. We have now sufficient data for completing the graduating of the instrument from one fixed point; and, in hot climates, and other situations, where ice, for example, cannot be conveniently procured, this facility of forming an exact thermometer is important. We know the weight of the whole included mercury, and that of each *gradus* of the stem. And, as from 32^0 to 212^0 Fahr., or from 0^0 to 100^0 cent., corresponds to a mercurial expansion in glass of one sixty-third, we can easily compute how many of our graduating spaces are contained in the range of temperature between freezing and boiling water. Thus supposing the mercurial contents to be 378 grains, one sixty-third of that quantity, or six grains, correspond to 180 of Fahrenheit's degrees. Now, if the initial measuring column were 0·6 of a grain, then ten of these spaces would comprehend the range between freezing and boiling water. Hence, if we know the boiling point, we can set off the freezing point; or, from the temperature of the living body, 98^0 Fahr., we can set off both the freezing and boiling points of water. In the present case, we must divide each space on our prepared scale into eighteen equal parts, which would constitute degrees of Fahrenheit; or into ten equal parts, which would constitute centigrade degrees; or into eight, which would form Réaumur's degrees. When we have ice and boiling water at hand, however, we may dispense with the weighing processes. By plunging the instrument into melting ice, and then into boiling water, we find how many of our initial spaces on the stem correspond to that interval of temperature, and we subdivide them accordingly. If the tube be very unequal, we must accommodate even our subdivisions to its irregularities, for which purpose the eye is a sufficient guide. Thermometers are used for two different purposes, each of which requires peculiar adaptation. Those employed in meteorology, or for indicating atmospherical temperature, are wholly plunged in the fluid; and hence the stem and the bulb are equally affected by the calorific energy. But when the chemist wishes to ascertain the temperature of corrosive liquids, or bland liquids highly heated, he can immerse merely the bulb and the naked part of the stem under the scale. The portion of the tube corresponding to the scale is not influenced by the heat, as in the former case; and hence one sixty-third part of the mercury, which, at 32^0 Fahr., was acted on, has, at 212^0, escaped from its influence. Hence a meteorological and a chemical thermometer ought to be graduated under the peculiar conditions in which they are afterwards to be used. The former should have its stem surrounded with the steam of boiling water, while its bulb is immersed an inch or two beneath the surface of that liquid, the barometer having at the time an altitude of thirty inches. A thermometer for chemical experiment should have its boiling point determined by immersion only of the bulb, and the naked portion of its stem below the scale, in boiling water. The water, of course, must be pure; and it ought to be contained in a metallic vessel. Before sealing up the end of the tube, we should draw it into a capillary point, and heat the bulb till the mercury occupy the whole of the stem. A touch of the blow-pipe flame on the capillary glass will instantly close it, and exclude the air from re-entering when the bulb becomes cool. If this has been skilfully executed, the column of mercury will move rapidly from one end of the tube to the other when it is inverted with a jerk. An ivory scale is the handsomest, but the most expensive. Those used in Paris consist of a narrow slip of paper enclosed in a glass tube, which is attached in a parallel direction to the thermometer stem. It is soldered to it above by the lamp, and hooked to it below by a ring of glass.

Like most other important discoveries, that of the thermometer has had several claimants, the respective merits of whom it seems nearly impossible at the present day definitely to determine. Though by some Galileo has been considered as the true inventor, and by others, Father Paul Sarpi the Venetian, this honour chiefly rests between Sanctorius, an Italian physician, and Drebbel, a Dutchman, both men of ingenuity and original minds. Many moderns support each of these claims, but Sanctorius (or Santorio,) has on the whole most in his favour, since, as Martine justly observes, no one but he demanded the honour of an inventor during his lifetime. His *Commentaries on Avicenna*, published in 1626, are very interesting, since they contain descriptions and curious wood cuts of the various forms of the thermometer which he proposed for medical purposes; and the extent to which he carried it in other matters, is shown by his attempt described and figured at folio 22 of that work, to compare the heat of the sun's and moon's rays, an attempt which afterwards became one of the most delicate in natural philosophy. Perhaps Sanctorius and Drebbel in-

vented much about the same time this instrument, a circumstance by no means improbable considering the then advancing state of physical science. Be this as it may, the instrument contrived by each was precisely similar, in which air was employed as the expanding substance, which, in several respects, is remarkably well fitted for this application.

Comparative Scales of Thermometers. A fertile cause of error in estimating and comparing the statements of temperature, is the very different manner in which they are made by scientific men of different nations. Wherever the English language prevails, the graduation of Fahrenheit is generally preferred. By the German authors Réaumur is used; and the French have, within a few years, decided to adopt that of Celsius, a Swedish philosopher, calling it *thermomètre centigrade.* The Russians still use the graduation of De Lisle. The two remarkable temperatures of the boiling and the freezing of water are thus expressed by the several thermometers mentioned:

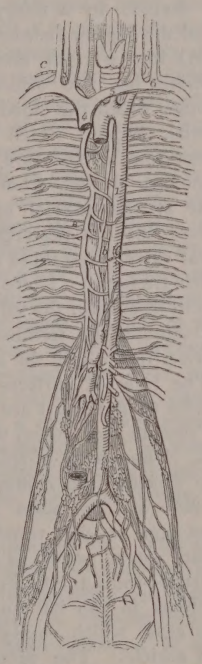
	Fahr.	Centig.	Reaum.	De Lisle.
Boiling point,	212°	100°	80°	0°
Freezing point,	32	0	0	150

So that the number of degrees of each, included between these two points in each, is 180^0 Fahr., 100^0 centig., 80^0 Réaum., 150^0 De Lisle; and of course 9^0 Fahr.—5^0 centig.—4^0 Réaum.—$7\frac{1}{2}^0$ De Lisle. Fahrenheit's is, therefore, the smallest degree, and Réaumur's the largest. The 0^0 is called the *zero:* all degrees below this are called *minus,* and are prefixed by a dash, thus -20^0. In the Réaumur and centigrade scales, the degrees above zero are also called *plus,* and marked thus, $+20^0$, to prevent one kind being mistaken for another.—*Rules for changing the degrees of any one of the scales into equivalent degrees of another;—Fahrenheit into Réaumur.* Each degree of Fahrenheit is equal to four-ninths of one of Réaumur. As Réaumur, however, reckons his degrees from the freezing point, and Fahrenheit 32^0 below this point, we must, when the number of Fahrenheit's degrees to be reduced indicates a temperature above the freezing point, first deduct thirty-two, and then multiply the remainder by four, and divide the product by nine. The quotient is the corresponding number of degrees on Réaumur's scale. If the temperature indicated was less than the freezing point, we must also be careful to take the actual number of degrees, reckoning from the freezing point. Thus four degrees above Fahrenheit's zero is twenty-eight below his freezing point; and this is the number to be reduced to Réaumur's scale.—*Réaumur into Fahrenheit.* Each degree of Réaumur is equal to $2\frac{1}{4}$ of one of Fahrenheit. Multiply the given number of degrees of Réaumur by nine, and divide the product by four. If the degrees of Réaumur were minus, the quotient must be deducted from thirty-two, and the remainder will be the equivalent degrees of Fahrenheit. If the given degrees were not minus, the quotient must be added to thirty-two degrees, and the sum will be the equivalent sought.—*Fahrenheit into Centigrade.* Each degree of Fahrenheit is equal to five-ninths of one of the centigrade. Proceed as in the case of Fahrenheit into Réaumur, multiplying, however, by five and dividing by nine.—*Centigrade into Fahrenheit.* Proceed as in Réaumur into Fahrenheit, multiplying by nine and dividing by five.—*Réaumur into Centigrade.* Each degree of Réaumur is equal to $1\frac{1}{4}$ of the centigrade. Multiply the given number of degrees of Réaumur by five, and divide the product by four; the quotient will be the equivalent number of degrees on the centigrade scale.—*Centigrade into Réaumur.* Each degree of the centigrade is equal to $\frac{4}{5}$ of Réaumur. Multiply the given number of degrees of the centigrade by four, and divide the product by five; the quotient will be the equivalent number of degrees on Réaumur's scale. Extensive tables of the correspondence of these thermometrical scales, and some of the most remarkable temperatures, may be found in the *Treatise on the Thermometer and Pyrometer,* in the Library of Useful Knowledge.

THIRST. The sensation which attends the desire to drink. During the operations of the animal functions, a great quantity of moisture is consumed, the loss of which must be supplied. Thirst, and the feeling of languor by which it is accompanied, are the voice of nature, calling upon the animal to supply the place of the lost moisture by drinking. The sensation of thirst is not always equally strong; but it depends partly upon the food and the prevailing temperature. In summer, when the process of perspiration is active, and the consumption of moisture consequently great, all animals drink more than in winter. Cold-blooded and inactive animals bear thirst much longer than warm-blooded and lively animals. Madness, and the consequent lassitude and exhaustion, are produced by long and excessive thirst no less than by hunger. Plants also suffer from thirst, and wither under its influence. An outward application of moisture is found to diminish thirst; and sailors have preserved their lives by bathing in the sea. The vicious habit of frequently drinking, and the desire of tasting some liquids, such as brandy, wine, &c., cause the development of a morbid feeling, which is mistaken for thirst, to which it has a great analogy.

THORACIC DUCT. The trunk of the absorbents into which the lacteal and lymphatic vessels of the body empty themselves. It is of a somewhat tortuous form, and from eighteen to twenty inches long in the adult; for it usually commences opposite the body of the second or

third lumbar vertebra, whence it extends upwards to the root of the neck. At the point where it commences in the abdomen there is generally a considerable dilatation, although this is not always the case; and, therefore, the commencement of the tube is named the receptacle for the chyle, which is not a very proper term, as the duct receives the lymph as well as the chyle. It at first lies behind the abdominal aorta, but as it ascends it gradually gets to the right side of that vessel, so that when it enters the thorax it is placed between the vena azygos and thoracic aorta; it then gradually inclines towards the left side, and opposite the third dorsal vertebra it passes behind the arch of the aorta, and comes in contact with the gullet. It then continues its course upwards into the neck, until it arrives opposite the seventh cervical vertebra, when it changes its course, inclining forwards, downwards, and inwards, so as to describe a sudden curve before it terminates by entering at the angle formed by the union of the subclavian and internal-jugular veins. At the junction of the duct with these veins there are two valves, so placed as to prevent the entrance of any blood into the duct; and, whilst they allow the chyle and lymph to pass freely into the veins, they effectually prevent their return into the duct.



1 Aorta. 2 Left subclavian artery. 3 Left carotid. 4 Vena cava superior. 5 Left vena innominata. 6 Left subclavian vein. 7 Left internal-jugular vein. 8 Vena azygos. The letter *a* marks the commencement of the duct or receptaculum chyli; *b*, the body of the duct; and *d*, the curve which it forms in the neck previous to joining the veins, as already described.

THORAX. The upper part of the trunk of the body is known by this name. As regards the bony regions of this division of the human frame, it may be said to resemble an arched cavity, narrow above, broad below, flat in the front, hollow posteriorly or in the back, and convex laterally or on the sides. The bones which compose the chest are the twelve dorsal vertebræ or the twelve bones of the spine or back-bone, the sternum or breast-bone, and the twenty-four ribs, that is, twelve on each side. Of these there are seven true ribs on each side, or those whose cartilaginous extremities are affixed to the sternum or breast-bone, and five spurious or false on each side, whose extremities do not reach the breast-bone.

This great and important division of the body extends between the neck and the belly or abdomen. It is divided internally into, first, the right and left cavity of the chest; second, the cavity of the pericardium, or in other words, of the heart; third, into the anterior or front mediastinum; and fourth, into the posterior mediastinum, by which term is meant a membranous septum that divides the cavity of the chest into a front and back portion.

The external parts are the common integuments, the breasts, various muscles, and the bones already enumerated. The breasts will be more appropriately described under the article *Breast*, as they are peculiar to the female; and the external muscles under *Respiration*, a process in which these muscles, in addition to their uses as an external covering and defence of the viscera and of the thorax, perform an interesting part.

The internal parts, or viscera of the thorax, are the pleura, the lungs, the thymus gland, the œsophagus, thoracic duct, heart, arch of aorta, and the branches of the arteries and veins connected with the heart, and the nerves which are common to the thorax, or take their passage through it to the abdomen and lower extremities. The *Pleura* is a smooth, transparent membrane, which lines the internal surface of each lateral cavity of the chest, and covers its viscera, performing the same important offices that the peritoneum performs to the abdominal viscera. The external surface of this extensive membrane is attached by blood vessels and cellular membrane to the ribs, intercostal muscles, sternum, bodies of the dorsal vertebræ and diaphragm, so that it may be compared to two large bags or pouches. The right lies close to the internal surface of the ribs down to the diaphragm, passes over it, giving it a covering; and having reached the heart bag, near the middle of the inferior part of the chest, it adheres to it and goes up to the sternum, to the very top of the chest, where the bronchia or windpipe enter and the lungs begin, and in this part the pleura is reflected over them. The left bag lines, covers, and envelopes the left cavity in the same way. The pleuræ of both cavities at the sides of bodies of the vertebra go directly forwards to the sternum, without coming into contact with one another; a quantity of cellular structure being interposed, and thus divide the thorax into a right and left cavity. This partition being one of those we have enumerated, termed the mediastinum, in which are two spaces, the anterior or front space directly behind the sternum, and the posterior or back partition immediately before the bodies of the dorsal vertebræ. The pleura is furnished

with arteries, veins, and nerves. The use of this membrane is to form the mediastinum for the purposes already stated, to render the surface of the viscera moist, and to give a smooth membranous covering to the lungs and pericardium or heart bag.

The *mediastinum*, the membranous partition already described, contains, between the two pleuræ of which it is formed, the pericardium, and in the fœtus the thymus gland in the anterior or front part, and the œsophagus, descending aorta, vena azygos, thoracic duct, splachnic and pneumogastric nerves in the posterior division.

The *lungs* are divided into the right and left, and are situated in the cavities of the thorax; they are the organs by which we breathe, and are not only employed for respiration but sanguification, the blood in its passage through them undergoing an important change. The lungs are connected with the heart by means of the pulmonary artery and veins, and with the trachea or windpipe by means of the bronchia, which are continuations of the trachea, and are formed of the very same materials, and which receive the air we breathe from the windpipe and convey it to the lungs. The glands about the bronchia are very numerous and termed bronchial, and are the seat of very dangerous diseases. A fuller account of the structure of the lungs will be found under the articles *Lungs* and *Respiration*.

The *pericardium* or heart bag adheres to the diaphragm, pleura, and the veins and great arteries going to and from the heart, and is a membranous bag or sac surrounding or containing the heart. It is furnished with arteries, veins, and nerves, and in addition to the high office of surrounding and defending the heart, it secretes a fluid which lubricates it, and thus prevents friction, &c., and other injuries to which it would be exposed to if denuded of this covering; indeed, there are instances in which it has been awanting. It is often the seat of disease.

The *heart*. The adult heart is distinguished in the dead body whilst in its natural receptacle; the pericardium into an anterior or front surface, and posterior or back surface, and margins into a base from which the large arteries emerge, and an apex. In the living body the base of the heart is towards the dorsal vertebræ, its apex towards the sixth rib of the left side, so that its situation is oblique, as will be seen from the cut in the article *Abdomen*, Part 1st, page 2d, and not transverse; the right ventricle being anterior, the left posterior, and the inferior surface resting on the diaphragm. The heart is a hollow, muscular viscus, by whose contractile power the blood is sent to every part of the body, and is divided into two auricles or cavities, which lie upon its base surrounding the larger arteries, two ventricles or cavities in the internal part: and the arteries and veins going from and terminating in it.

The *right auricle* is a large muscular sac, in which the superior *vena cava* and the inferior terminate; it has a little process, or *cul de sac*, like an auricle or little ear, from which it took its name, and an opening at its bottom into the right ventricle. In other words, there are four *apertures*, two of the vena cava, an opening into the right ventricle, and the opening of the coronary vein.

The *left auricle* is a similar sac, in which there are five apertures, viz. those of the four pulmonary veins, and an opening into the left ventricle. The cavities in the base of the heart, as already stated, are called ventricles, and these are divided by a fleshy septum (or partition called the septum cordis, or the septum of the heart) into a right and left ventricle. Each ventricle has two orifices; the one auricular, through which the blood enters, and the other arterial, through which the blood passes out. These four orifices are supplied with valves, which are named, from their resemblance to those at the arterial orifices, the semi-lunar valves; those at the orifice of the right auricle mitral valves; and those at the orifice of the left auricle tricuspid. There is another valve, named after its discoverer the valve of Eustachius, which is situated at the termination of the vena cava inferior, just within the auricle.

The internal surfaces of the ventricles and auricles of the heart are invested with a strong and smooth membrane, which is extremely irritable. The vessels of this important organ have been divided into common and proper. The common are the aorta or large artery, which arises from the left ventricle; second, the pulmonary artery, which originates from the right ventricle; third, the four pulmonary veins, which terminate in the left auricle; and fourth, the vena cava, which empty themselves into the right auricle. The proper vessels are, first, the coronary arteries, which arise from the aorta, and are distributed on the heart; second, the coronary veins, which return the blood into the right auricle. The nerves of the heart are branches of the eighth pair and intercostals.

The *heart of the fœtus* differs from the adult in having a *foramen ovale* or opening between the two auricles of the heart, and through which the blood passes from the right auricle to the left. The circulation of the blood in the adult, and the peculiarities of the fœtal circulation in the womb, will be found pretty fully stated under its proper head. The preceding short description of the heart will, however, enable the attentive reader to understand more clearly what is said respecting the circulation. The articles *Arteries* and *Veins* may likewise be consulted. The uses

of this organ are well known even to the most ignorant and illiterate as the primary organ of the blood's motion. It is liable to a variety of diseases, most of which prove fatal, and that very suddenly. By first reading this description, and then consulting the cut in article *Abdomen*, and plate of *Blood-vessels*, a pretty correct idea may, we hope, be formed of the heart's real position, and its relative bearings to the other viscera of the chest. See *Heart* and *Palpitation*.

THORN APPLE. See *Strammonium*.

THOROUGH WORT, or *Euphalerium Perfoliatum*. This North American herb is not only a favourite with the faculty in the United States, but is much esteemed as a domestic medicine. It has an intensely bitter taste, with a slight degree of astringency; and, according to the dose in which it is employed, and the mode in which it is administered, it acts either as a tonic, sudorific or cathartic. An infusion is ordered in the States pharmacopeia to be made by infusing one ounce of the herb in a pint of boiling water, in a covered vessel for two hours, and then straining. It is given in fevers and inflammatory diseases, and produces the effects already stated, according to the dose. As a sudorific, the warm infusion is given every two hours in doses of from a half to a whole wine-glassfull. As an emetic and cathartic, from two to four ounces of the warm infusion at short intervals; and as a tonic, the cold infusion in doses of a small wine-glassfull an hour before meals. The powdered leaves are given likewise as a tonic three times a day in mint water, in doses of from a scruple to a dram. By producing these different effects, it has been found very useful in intermittents, continued fevers, and inflammatory diseases.

THROAT, Inflammation of. This affection occurs, like all other inflammatory complaints, in two forms, viz. the acute and chronic; although, when we speak of inflammatory sore throat, we generally mean the acute or active form.

Acute inflammation of the throat is generally ushered in with a feeling of uneasiness in the part, the voice is husky and altered in tone, the pain gradually becomes very severe, shooting along the course of the Eustachian tube towards the ear; there is often swelling of the glands of the neck, and for the most part, loss of appetite, thirst, headache, and a considerable degree of general fever accompany this complaint. On looking into the back part of the mouth, the tonsils, uvula, and even the soft palate, are seen swollen and vascular. The tongue is generally foul and loaded. Sometimes at an early stage of the complaint, white specks are seen on the tongue, which have somewhat the appearance of minute ulcerations, but which in reality are either specks of lymph effused on the surface, or matter secreted from the sebaceous follicles of the part, analogous to what we sometimes see in pimples on the face. Frequently, however, ulcerations do occur, but not generally till the expiry of some days. In severe cases, respiration is considerably impeded, and deglutition is always difficult and painful; and, in severe cases, even fluid aliments can only be swallowed, and that with great difficulty. Sometimes the irritative fever runs high, and there may be a degree of delirium or raving towards night.

Acute inflammation of the throat may terminate either in resolution or suppuration, or, in bad cases, in ulceration and sloughing. When suppuration takes place, the patient's sufferings are generally aggravated, the difficulty of breathing and swallowing are increased, and in common language he is said to be labouring under quinsy.

The most frequent cause of inflammation of the throat is cold, produced by sudden vicissitudes of weather, or sudden changes of temperature, as by persons suddenly emerging from a heated room into a cold night atmosphere. But in a great many cases it will be found that the patient has been predisposed to the disease, owing to his digestive organs being in a bad state previously; and persons who have long been subject to this complaint, on the slightest exposure to cold, by paying attention to the state of their stomach and bowels, have afterwards succeeded in keeping free of the disease.

Treatment. This is a disease which is difficult to manage, unless the patient be seen at the commencement; and even then, in persons who are subject to the complaint, it will often run its course in spite of the most active treatment.

If, however, the patient is seen at the commencement of the acute disease, it may generally be arrested, or at least mitigated. If the patient be robust, general bleeding may be had recourse to, and at the same time leeches applied behind the angle of the jaw or within the mouth, or the inflamed parts may be freely scarified; the last method of local depletion is the best, because it is less tedious, the patient is less exposed to cold than during the application of leeches, and the blood is drawn directly from the vessels of the inflamed parts; but the operator must be careful not to scarify too deeply, lest he injure any important part. Sinapisms or blisters should next be applied externally to behind the ears, and below the angle of the lower jaw. Gargles are very generally used, but we think they are more likely to prove hurtful than beneficial, as the exertion and movements of the inflamed parts necessary in gargling give rise to a great degree of irritation. The best local remedy, after scarifying the parts, is the inhalation of the vapour of warm water, either by means of an instrument made for the

purpose, or what is simpler and perhaps even better, by means of a simple apparatus composed of a common small bason or bowl and a towel. The bason, filled with warm water or warm vinegar and water, is placed on the centre of the towel, which is then gathered up round it; the patient then applies his mouth to the opening of the funnel formed by the folds of the towel, and the steam, which has no other outlet, necessarily ascends into his mouth and throat without any effort or suction on his part. Inhalation is beneficial, whether the disease is proceeding to suppuration or not. If a gargle be necessary to wash the throat, the best is either a solution of alum, or infusion of roses, acidulated with some mineral acid. At the same time that we are employing those topical remedies, we must also attend to the constitutional irritation, the bowels should be freely opened by means of some alterative pill or five grains of calomel, followed in an hour or two by a dose of castor oil or a saline draught; if there be much heat of skin and general excitement, nauseating doses of the antimonial solution should be given every hour or two, and in some cases, emetics, when given early, afford much relief. The bowels should be kept gently open, and a degree of perspiration kept up until the disease begins to give way; and the diet should be light, consisting of arrow root, sago, or Iceland moss, with plenty of diluent drinks. When matter forms, difficult breathing becomes a very prominent symptom, and may even lead to a fatal result; and, therefore, the abscess should be opened whenever its existence is fairly ascertained.

In chronic inflammation, troublesome ulcerations, together with enlargement and hardening of the tonsils and uvula frequently take place. The treatment consists in stimulating gargles, touching the ulcers with lunar caustic or pure nitric acid, blisters to the neck, and the application of iodine liniment to the blistered surface, and the exhibition of iodine and alterative medicines internally. In cases where the tonsils or uvula become much enlarged and hardened, surgical operation for their removal becomes requisite; but this disease will be found treated of under the article *Tonsils* in a subsequent part of this work.

THROAT, Putrid or Malignant Sore. There are no signs at the commencement of this disease by which we should be led to suspect its real nature, as all its primary symptoms are exactly similar to those of common or inflammatory sore throat, described in the preceding article. But in a short time it assumes its peculiar characters, and all doubts as to its nature are removed by the appearance of gangrene, which sometimes occurs so early as the second day. From the severity of this affection, we should always be on the watch in inflammations of the throat, and dread its approach: 1st. In delicate women and children. 2d. In persons who are affected with gangrene of other parts of the body. 3d. In cases of sore throat occurring in scarlet fever, or in diseases where there are eruptions on the skin of a livid colour. 4th. When the disease is epidemic. 5th. When the person affected has been in attendance on others labouring under the complaint, for under some circumstances the disease appears to be contagious. 6th. When the inflamed parts are livid or of a deep red without much swelling; or when, after having been of a lively red, they become pale, at the same time that the patient complains of dryness of the fauces, and considerable general depression; or when the parts are covered with those false membranes which so frequently occur in all inflammations of the throat. 7th. In cases where general or local bleeding induces a state of weakness neither proportionable to the strength of the patient or quantity of blood drawn.

Putrid or sloughing sore throat may be known by the small gray or ash-coloured specks which appear on the tonsils and neighbouring parts, spreading with rapidity, and running into one another so as to form large patches; the surrounding mucous membrane is of a pale or livid colour. The ash-coloured patches become of a dark gray colour, or even black, towards the conclusion of the disease; as soon as they are completely developed, the throat ceases to be painful, swallowing becomes easier than formerly, and the breath often loses its fetid smell; but symptoms of general prostration of strength supervene, and the patient speedily perishes. In some cases the rapid sloughing of the parts lays bare and destroys the carotid artery, and the patient dies from hemorrhage. In some cases the breathing through the nostrils becomes difficult, and the voice nasal, showing that the diseased action has attacked these parts, and an irritating ichor flows from the nostrils, excoriating the neighbouring parts. At other times the gangrene extends down the air passages, in which it is preceded by pain in the larynx and windpipe, cough, difficult breathing, and loss of speech. When it attacks the pharynx and gullet, there is a sense of suffocation, and impossibility of swallowing. On examination after death, the tonsils, uvula, lining membrane of the mouth, the back part of the tongue, the larynx and pharynx, are found covered by patches of the sloughy specks already spoken of, in different stages, from the simple patch or speck to the half detached slough; and frequently we see ulcerations, perforations, and loss of substance in the affected parts to a great extent. The constitutional symptoms throughout are generally of a low typhoid character.

Treatment. This varies considerably according to the state of the particular patient, for in

many cases of phagademic ulceration, both in the throat and elsewhere, we find that bleeding is of the utmost benefit; and this is exemplified in cases in which the sloughing has laid bare some considerable vessel, giving rise to hemorrhage, when it is frequently found that the sloughing is arrested, and a rapid cure takes place. In the first stage, therefore, if the patient be at all able to bear depletion, local abstraction of blood should be had recourse to, either by means of leeching or scarification, which latter is preferable. The specks should be touched with pure nitric acid, introduced on the end of a glass rod. With regard to gargles, we consider that the inhalation of the vapour of warm water or medicated water, as recommended when treating of inflammatory sore throat, is the best local application of the kind at first. When ulceration has fairly commenced, gargles of diluted muriate or nitro-muriatic acids, or a weak solution of the chloride of lime combined with the tincture of myrrh, are frequently of great service. As regards the constitutional treatment in the first stage, with the exception of general bleeding, nearly the same plan is to be pursued as recommended in the inflammatory form; but in the later stages, the constitutional symptoms generally demand the exhibition of antiseptic tonics, as the decoctions of Peruvian bark with acid, or the sulphate of quinine with acid, and the exhibition of the decoction of sarsaparilla with diluted nitric acid, given internally, is often of the greatest service in checking the ulcerations. In some cases, indeed generally towards the end of this formidable disease, we are frequently obliged to give stimulants, such as port wine; but their exhibition both then and during the first steps toward convalescence requires the utmost caution. Where the pharynx and gullet become affected, the result is generally fatal; and as deglutition is impossible, the patient requires to be supported by means of nutritive enemata, composed of strong animal jellies, dissolved and combined with port wine or even brandy; but we need hardly say that such cases are all but hopeless. In cases where the disease attacks the larynx and air passages, as may readily be supposed, it is almost uniformly and rapidly fatal.

THROMBUS. A small dark-coloured swelling which sometimes arises after venesection. It is caused by the extravasation of blood from the opened vein into the loose cellular tissue which surrounds it. A thrombus may be caused by the awkwardness of the person who opens the vein; as for example, when the incision of the integuments over the vein is too small, preventing the free exit of the blood, and therefore in bleeding we should take care, after the point of the lancet has entered the vein, to move the shoulder of the instrument upwards, so that the wound of the skin may be larger than that of the vein. Thrombus, however, may occur in the operation performed by the most dexterous, owing to the unsteadiness of the patient, causing the vein to roll beneath the skin, so that the opening in the vessel and that of the integuments do not correspond. And in fat persons, granules of fat are often protruded through incision of the integuments, preventing the free flow of blood, even though the incision be of a good size. Thrombus produces no bad consequences, although it may alarm the patient or an inexperienced operator, for it rapidly disappears on bathing the parts with a little warm water or vinegar.

THRUSH OR APHTHÆ. This disease was by some thought to be one peculiar to infants; but it is not so, although it is more frequently met with in infants than in adults. The complaint first appears in the corners of the lips, spreading over the tongue and inside of the cheeks in the form of little white specks. Increasing in number and size, they run more or less together according to their malignancy, and compose a thin white crust which spreads over the whole inside of the mouth, gums, pallet, and tonsils. They usually soften in the centre and discharge a glutinous mucus, which forms the whitish crust already noticed, adhering at first most tenaciously, and falling off without inducing any eschar on the parts beneath. In some cases the lining membrane of the mouth and throat, and surface of the tongue, become covered with patches of a loose ragged membrane hanging from these parts, and a dull whitish-gray or reddish colour. There is difficulty of mastication when the disease appears in the adult, and a disinclination in the infant to take food or even the breast; there is also a difficulty of swallowing and even of respiration. These are symptoms of the disease having extended to the throat, and that there is inflammation of the lining membrane of the pharynx, which is continuous with the mouth and whole digestive tube. The cries of the infant are remarkably altered, and it is this that has led a celebrated French physician to say, 'that infants manifest their pains more by hoarseness and wheezing than by real cries.' In cases where the disease proceeds to this state, there is no doubt it has reached the stomach, and may extend throughout the whole length of the internal membrane of the intestines; and when this has taken place, large quantities of mucus is evacuated by stools, by vomiting and by coughing. The crusts or aphthæ often fall off in the space of ten or twelve hours, but sometimes they remain attached for several days, and then a separation takes place; and these crusts are succeeded by others of a darker colour, and the same thing successively occurs till the disease departs. In very severe cases the ulcers assume a livid colour and become gangrenous, or have

a mortified appearance. In others the surface of the tongue between the ulcers is of a bright red colour. Children in early infancy are most commonly the subjects of this disease, though it may appear at any period of life; and indeed at one time was deemed endemic and even contagious.

It is sometimes preceded by sleepiness for a week or two. It is commonly without fever, which generally supervenes in its progress. In others there is much feverishness and irritability, attended with that disinclination to the breast and fretfulness whenever it is applied. The mouth becomes hot and tender, the nipples of the nurse become painful, or sometimes excoriated, or chopped, from the contact of the infant's mouth. The disease is slight when confined to the mouth, but when it extends to the stomach and bowels there will be frequent vomiting and laxness; and the vitiated state of motions by stool irritate and excoriate the termination of the bowels called the rectum, and even the anus or fundament, which become covered with spots like those of the mouth.

The causes of this disease are indigestion from whatever cause it may proceed, consequent on debility, exposure to impure air, bad milk or unwholesome food, allowing the infant to take the breast too often, or in those who are reared by spoon, bottle, or prepared teat, to have these too frequently in the mouth. These combined causes evidently give rise to irritation, which particularly affects the small glands of the cheeks, and of the membranes lining the mouth, and extends to the stomach and bowels.

Treatment. The principle of cure in this disease is plain and simple, and if early observed, is by no means difficult. One of the first, and, indeed, the first thing to be done, is to administer in small doses the infant's powder, (for which a formula is given in the *Pharmacopeia*,) which is composed of rhubarb and magnesia. A small piece of clean sponge, surgeon's lint, or even fine linen rag, may be fastened to the end of a quill; and either of these dipped in a solution of alum, which can be easily made by dissolving the size of a marrowfat pea in two spoonfulls of boiling water. With this the inside of the mouth is to be gently touched, especially the white specks. Borax may be used where alum cannot be had, in the same proportion and manner; when borax is mixed with honey, in the case of very young infants, it is too irritating. In addition to the means of correcting the state of the bowels by the magnesia and rhubarb, a table-spoonfull or two of melted fresh butter or rich broth should be injected into the lower part of the child's bowels by a syringe, (see *Enema*,) and the child kept quiet, so that the butter or broth might not pass too soon, as the longer it remains in the bowels the better. The child should be placed in a warm bath, (see directions for bathing children,) and allowed to remain in the bath ten or twelve minutes, and then be dried and put in a warm cradle or bed. The powder and broth injection should be continued daily till the child's stools are of a natural colour and smell, and the gargle or wash used three times a day. Before putting the child to the breast, its mouth may be washed in the same way with milk and water, and after it has sucked it should be touched with the solution of alum or borax. By pursuing this simple plan, it will, if early adopted, we are warranted by our experience to assert, cure ninety-nine cases of every hundred of the disease.

THYMUS GLAND. A gland of considerable size in the fœtus, situated under the sternum in the anterior mediastinum. The principal peculiarity of this organ is that its existence is temporary: it can be distinguished early in fœtal life, and increases in size until birth, and for a short time afterwards; generally at the end of the first year it begins to decrease, and at the age of puberty is so far altered in structure that its remains have no appearance of being glandular.

The thymus gland is a narrow elongated body, composed of two lateral lobes of a reddish gray colour, placed in behind the sternum at the upper part of the thorax (in the anterior mediastinum), and extending upwards into the neck. The base or broad extremity rests upon the upper part of the pericardium, to which it is connected by cellular tissue, the apex or remnant of the gland passes up into the neck as high as the lower part of the thyroid body, to which it is also connected; in its course upwards it lies on the fore part of the windpipe, and beneath the sterno, thyroid, and hyoid muscles. The uses of the thymus body in the fœtus and the infant may be said to be at present unknown; for although the admirable injections and dissections made by Sir Astley Cooper during his investigations of the structure of this body have served to throw much light on its minute structure, particularly in the lower animals, still its actual use in the fœtal system is only matter of conjecture.

THYROID GLAND. It is questionable how far the term gland is applicable to this body, for, like the thymus, its uses are still unknown, nor has any excretory duct ever been traced from it; but we have used the term, as it is that by which the body is generally known. The thyroid gland is a body of dusky red colour, situated on the upper or fore part of the trachea. It consists of two large lateral lobes, each being of a conical form, the apices directed upwards lying upon the sides of the cricoid and lower part of the thyroid cartilages of the larynx; these lateral lobes are connected by a narrow transverse slip which crosses the trachea immediately beneath the cricoid cartilage of the larynx,

and sometimes lies upon that cartilage. The thyroid body is supplied with four large arteries (the inferior and superior thyroids), but its uses in the animal economy are as yet unknown. The gland is subject to enlargement, forming a large elastic tumour in front of the neck, constituting the disease called Derbyshire-wen, and which we have already treated of under the title of *Bronchocele* in a former part of this work.

TIC DOULOUREUX. A painful affection of the facial nerve, is so called from its sudden and excruciating stroke. It is a species of neuralgia, which comprises similar affections in other parts of the body. It is characterized by acute pain, attended with convulsive twitchings of the muscles, and continuing from a few minutes to several hours. The causes of this affection are unknown, and it often baffles the skill of the physician. The best remedies are large doses of the carbonate of soda, continued for some time.

TIN was known to the ancients in the most remote ages. The Phœnicians procured it from Spain and from Britain, with which nations they carried on a very lucrative commerce. It appears to have been in common use in the time of Moses. It is rather a scarce metal, occurring in the earth in but two forms, namely, that of the peroxide, usually contaminated with the oxides of iron and manganese, and of a double sulphuret of tin and copper, the last of which, however, is an exceedingly rare mineral. (For a description of these ores, see the end of the present article.) Cornwall has been celebrated for its tin mines from the remotest ages; and it still continues the most productive country in this metal in all Europe. The mountains which separate Galicia from Portugal were also very productive of tin in ancient times, and still continue unexhausted. The mountains between Saxony and Bohemia have been wrought as tin mines for several centuries, and still continue productive. Mines of it occur in the peninsula of Malacca, in India, in Chile, and in Mexico. The tin-stone (or peroxide of tin) is the only ore used for obtaining metallic tin. The first process to which it is subjected is grinding. The ground ore is then washed, which removes the impurities; for the specific gravity is so high that it is easy to wash away the earthy matter, and even some of the foreign metallic ores with which it is often mingled. But there are other bodies so nearly of the same specific gravity of the tin ore that they cannot be thus removed. The next process is roasting the ore in a reverberatory furnace; this expels the sulphur and arsenic with which the foreign matters were combined, and thus diminishes their specific gravity so much that they can now be washed away. The ore, thus freed as much as possible from foreign matter, is mixed with the requisite fuel and lime-stone, and heated strongly in a reverberatory furnace, so as to bring the whole into the state of fusion, which is kept up for about eight hours. The lime unites with the earthy matters still mixed with the ore, and flows with them into a liquid glass, while the coal reduces the oxide of tin to the metallic state. It falls by its weight to the bottom, and is, at the end of about eight hours, let out by tapping a hole in the furnace, which had been filled with clay. The tin thus obtained is still very impure. It is returned to the furnace, and exposed to a heat just sufficient to melt it. The pure tin flows out into a kettle, while a quantity of impurities remains behind. The tin in the kettle is kept in fusion and agitated, by which a quantity of impurity is accumulated on its surface. It is skimmed off, and the tin, now refined, is cast into blocks, weighing each about 300 pounds.

Tin, when pure, has a fine white colour, like silver; and, when fresh, its brilliancy is great. It has a slightly disagreeable taste, and emits a peculiar smell when rubbed. Its hardness is between that of gold and lead. Specific gravity, 7.28. It is very malleable; tin leaf, or *tin foil*, as it is called, is about one thousandth part of inch thick; and it might be beat out into leaves as thin again, if such were wanted for the purposes of art. Its ductility and tenacity are much inferior to those of most of the metals known in early times. It is very flexible, and produces, while bending, a remarkable crackling noise, sometimes called the *cry of tin*. It melts at 442° Fahr. When cooled slowly, it may be obtained crystallized in the form of a rhomboidal prism. After a short exposure to the air, it loses its lustre, and assumes a grayish-black colour, but undergoes no further alteration. Neither is it sensibly altered by being kept under water. When tin is melted in an open vessel, its surface becomes very soon covered with a gray powder, which is an oxide of the metal. If the heat be continued, the colour of the powder gradually changes, and at last it becomes yellow. It forms two oxides. The *protoxide* has a black colour, but when combined with water, is white. The *peroxide* is yellow, and in certain circumstances, is transparent, and nearly white. The *black oxide*, or *protoxide*, may be obtained by dissolving tin in muriatic acid till a saturated solution is obtained, precipitating the liquid by means of carbonate of soda, and collecting the precipitate on a filter, washing and drying it at a temperature not exceeding 180° Fahr. By this process a white powder is obtained, which is a hydrated protoxide. It requires to be raised to a red heat in a glass retort to expel the water, after which it is a black powder, devoid of lustre, tasteless, and insoluble in water. When heated in the open air, it takes fire, burns brilliantly, and is con-

verted into peroxide. It is distinguished from the peroxide of tin not only by its colour, but by being insoluble in ammonia and in carbonate of potash. The other oxide exists abundantly in nature, though rarely free from admixture with iron. When pure, its colour is yellow. It is translucent, or almost transparent, and crystallizes in octahedra with square bases. Specific gravity 6.6. It is insoluble in all acids, until it has been fused with an alkali. Tin combines with chlorine in two proportions, forming the *protochloride of tin*, and the *perchloride of tin*. The former of these may be formed by heating together an amalgam of tin and calomel, or by evaporating to dryness the protomuriate of tin, and fusing the residue in a closed vessel. It has a gray colour, a resinous lustre and fracture, and takes fire when heated in chlorine gas, and is converted into the perchloride. The perchloride of tin has long been known under the name of *fuming liquor of Libavius*, because it was discovered by Libavius, a chemist of the sixteenth century. It is usually prepared by mixing together an amalgam of tin and corrosive sublimate, and distilling with a very moderate heat. At first, a colourless liquor passes into the receiver, consisting chiefly of water: then the fuming liquid rushes all at once into the receiver in the state of vapour. It is colourless, like water, and very fluid. When three parts of it are mixed with one of water, the mixture condenses into a solid mass. It acts with great violence on oil of turpentine. There are compounds, also, of tin with bromine and with iodine. Tin also combines with phosphorus and with sulphur. One combination of tin and sulphur (the persulphuret) has long been known in chemistry under the name of *arum mosaicum*, or *mosaic gold*. It is formed by mixing twelve parts tin, seven parts sulphur, three parts mercury, and three parts sal ammoniac, and exposing the mixture to a strong heat, for eight hours, in a black-lead crucible, to the top of which an aludel is luted. The mosaic gold sublimes. It may also be formed by mixing together in a retort equal parts of sulphur and oxide of tin, and distilling. When pure, it is in the form of light scales, which readily adhere to other bodies, and which have the colour of gold. Tin and arsenic may be alloyed by fusion. The alloy is white, harder and more sonorous than tin. Tin and antimony may be united together in various proportions. Equal parts of tin and molybdenum melt into a blackish-gray, granular, brittle, soft mass. Tin does not combine readily with iron. An alloy, however, may be formed by fusing them in a close crucible, completely covered from the external air.

Tin plate is formed by dipping into melted tin thin plates of iron, thoroughly cleaned by rubbing them with sand, and then steeping them twenty-four hours in water acidulated by bran or sulphuric acid. The tin not only covers the surface of the iron, but penetrates it completely, and gives the whole a white colour. Tin and zinc may be easily combined by fusion. This alloy is often the principal ingredient in the compound called *pewter*. Lead and tin may be combined in any proportion by fusion. This alloy is harder, and possesses much more tenacity than tin; and these qualities are at a maximum when the alloy is composed of three parts of tin and one of lead. The presence of tin seems to prevent, in a great measure, the noxious qualities of the lead from becoming sensible when food is dressed in vessels of this mixture. This result is often employed to tin copper vessels; and the noxious nature of lead having raised a suspicion that such vessels, when employed to dress acid food, might prove injurious to the health, Mr Proust was employed by the Spanish government to examine the subject. The result of his experiments was, that vinegar and lemon-juice, when boiled long in such vessels, dissolve a small portion of tin, but no lead, the presence of the former metal uniformly preventing the latter from being acted on. The vessels, of course, are innocent. What is called *ley pewter* is often scarcely any thing else than this alloy. *Tin foil*, too, is almost always a compound of tin and lead. It is in the formation of these alloys that tin is principally employed. Its oxides are used in enamelling, and to polish the metals; and its solution in nitro-muriatic acid is an important mordant in the art of dyeing, rendering several colours, particularly scarlet, more brilliant and permanent.

Tin ores. These are but two in number, *tin ore* and *tin pyrites*. The first of these occurs crystallized, and in a great variety of forms, but which may all be derived from an octahedron with a square base, the angle over the apex being 112° 10′. The majority of the crystals have the general figure of a right square prism, with four-sided pyramids at each extremity. The cleavages take place parallel with the sides of this prism, and with both its diagonals. The crystals may be cleaved also parallel to the sides of the above-named octahedron, but with difficulty. The prisms are sometimes vertically streaked. Lustre adamantine; colour various shades of white, gray, yellow, red, brown, and black; streak pale gray; in some varieties it is pale brown; semi-transparent, sometimes almost transparent, and at others opaque; brittle; hardness about that of feldspar; specific gravity 6.96. Tin ore presents itself in a great variety of compound or macled crystals. It also occurs reniform, rarely in botryoidal shapes, and massive, with a granular or columnar composition, the individuals being strongly connected, and the fracture uneven. The *wood tin* of the Cornish mines is a mere variety of tin ore. The fol-

lowing ingredients were found in a specimen of crystallized, and in a massive tin ore:—

	Crystallized.	Massive.
Oxide of tin,	99.00	95.00
Oxide of iron,	0.25	5.00
Silex,	0.75	0.00

In its greatest purity, it contains nothing but oxide of tin. Alone, it does not melt before the blowpipe, but is reducible when in contact with charcoal. It occurs disseminated through granite, also in beds and veins. It also occurs in pebbles, and is extracted in this shape from stream-works. The variety called *wood tin* has hitherto been found only in these repositories. There are but few countries in which the present species is met with in considerable quantities. These are Saxony, Bohemia, Cornwall, in Europe, and the peninsula of Malacca, and the island of Banca, in Asia. Within a few years, small crystals have been met with at Goshen, in Massachusetts, in a granite rock, accompanied by tourmaline and spodumene. *Tin pyrites*, the other ore of tin, occurs massive, with a granular composition; fracture uneven, imperfectly conchoidal; lustre metallic; colour steel-gray, inclining to yellow; streak black; opaque; brittle; hardness about that of fluor; specific gravity 4.35. Before the blow-pipe, sulphur is driven off, and the mineral melts into a blackish scoria, without yielding a metallic button. It is soluble in nitro-muriatic acid, during which the sulphur is precipitated. It consists of

Tin,	34.00
Copper,	36.00
Iron,	2.00
Sulphur,	25.00

It is found only at St Agnes, in Cornwall.

TINCTURE. A solution of any substance in spirit of wine. Rectified spirit of wine is the direct menstruum of the resins, and essential oils of vegetables, and totally extracts these active principles from sundry vegetable matters, which yield them to water not at all, or only in part. It dissolves, likewise, the sweet, saccharine matter of vegetables, and generally those parts of animal bodies in which their peculiar smell and taste reside. The virtues of many vegetables are extracted almost equally by water and rectified spirit; but in the watery and spirituous tinctures of them there is this difference, that the active parts in the watery extractions are blended with a large proportion of inert gummy matter, on which their solubility in this menstruum in a great measure depends, while rectified spirit extracts them almost pure from gum. Hence, when the spirituous tinctures are mixed with watery liquors, a part of what the spirit had taken up from the subject generally separates and subsides, on account of its having been freed from that matter, which, being blended with it in the original vegetable, made it soluble in water. This, however, is not universal, for the active parts of some vegetables, when extracted by rectified spirits, are not precipitated by water, being almost equally soluble in both menstrua.

Moreover, the insolubility of certain substances in different menstrua is not absolute but merely relative; for a certain proportion of alcohol may be added to a solution of gum in water without decomposing it; and a solution of resin in alcohol will bear a certain admixture of water without becoming turbid. Therefore diluted alcohol, which is a mixture of these two menstrua, sometimes extracts the virtues of heterogeneous compounds, more completely than either of them separately, and is commonly employed, unless when the solution requires rectified spirit to render it perfect. Alcohol is used as a menstruum:—

1. When the solvend is not soluble, or only sparingly soluble in water.
2. When a watery solution of the solvend is extremely perishable.
3. When the use of alcohol is indicated as well as that of the solvend.

In making alcoholic tinctures, we must observe, that the virtues of recent vegetable matters are less perfectly extracted by spirituous menstrua, than when previously carefully dried. As we cannot assist the solution by means of much heat, we must facilitate by the mechanical division of the solvend. A coarse powder often answers best, as when too minute it is apt to settle and agglutinate. To prevent loss, the solution is generally made in a close vessel, but the heat applied must be very gentle, lest it be broken by the expansion of the vapour. The Edinburgh and Dublin Colleges order digestion between 90° and 100° Fahr.; the London College employs maceration from 60° to 90.° The length of time during which maceration is to be continued, is generally seven days, by the Edinburgh and Dublin Colleges, and fourteen by the London.

The action of tinctures on the living system is always compounded of the action of the menstruum, and of the matters dissolved in it. Now these actions may either coincide with or oppose each other; and as alcohol is at all times a powerful agent, it is evident that no substance should be exhibited in the form of a tincture, whose action is different from that of alcohol, unless it be capable of operating in so small a dose, that the quantity of alcohol taken along with it is inconsiderable.

Tinctures are not liable to spoil, but they must nevertheless be kept in well closed phials, especially when they contain active ingredients, to prevent the evaporation of the menstruum.

They generally operate in doses so small, that they are rarely exhibited by themselves, but commonly combined with some vehicle, which ought not to decompose the tincture, or at least, not separate any thing from it in a palpable form. *Duncan's Dispensatory.*

TINEA, OR PORRIGO, is a term given to several species of pustular affections, which differ

essentially in their nature. Rayer, in his work on diseases of the skin, has marked out four kinds: viz. tinea favosa, annulare, or ring-worm, granulata or granular, and tinea, mucosa, or mucous. He considers these to be separated by something more than specific differences, some being contagious and others not.

Tinea favosa "is a chronic contagious inflammation of the skin, characterized by very small pustules, the summits of which soon become converted into yellow, very adherent crusts, depressed into a cup-like shape. These may be insolated, or agglomerated. It is most frequent where the cellular tissue is thick and dense, as in the forehead, scalp, and temples."

When it first appears, the pustules are so small as to be scarcely visible. Crusts are produced almost as soon as pustules are formed; these enlarge, and become depressed in the centre. Sometimes the crust becomes aggregated into one, so as to cover the whole head. At first the crusts are yellow, but afterwards they become whitened, cracked, and powdery; the odour is very offensive. The skin between the pustules often assumes an erythematous appearance, succeeded by furfuraceous or scaly desquamation, and the hair frequently falls off, from inflammation of the bulbs. In bad cases of tinea, extensive disease of the subcutaneous cellular tissue is produced, and is said even to have affected the periosteum and bones of the cranium.

Tinea annulare, or ring-worm, consists of chronic contagious pustules, disposed in circular groups, and commonly developed on the scalp. "It shows itself by circular red and inflamed patches, upon which small pustules are elevated, of a yellowish white, and having the centre generally pierced by a hair. The circle gradually increases, acquiring from half an inch to an inch and a half in diameter. The humor of the pustules thickens, forming thin hard crusts, but little adherent, and beneath which the skin is red and inflamed. In the space of two or three weeks, not only are the areas of the first groups extended, but new ones are formed, either spontaneously or from inoculation caused by the patient scratching the scalp. The hair falls off and is reproduced, several times in succession. The disease terminates by furfuraceous desquamation, but until this and the redness entirely disappear the patient cannot be pronounced cured. It is a very obstinate disease, and is principally incidental to children."

Tinea granulata, or scalled-head. In this form of tinea the pustules are irregularly scattered over the scalp, to which they are exclusively confined, chiefly showing themselves on the back part. The pustules are yellow, and form scabs of a brown or gray colour, which become powdery like dry mortar, and are generally prominent; never cup-shaped: it may continue for months, and even years; when chronic, it produces baldness in the affected part. The crusts are not very adherent, and when they separate, they leave the skin red and inflamed. There are no good grounds for believing this form of tinea to be contagious.

Tinea mucosa. In this form of tinea, the pustules are white, and disposed in irregular groups, upon the face and scalp; the skin has an erythematous tint, and the pustules burst about the fifth or sixth day, discharging a fluid, which forms crusts of a yellow or greenish colour. On the margin of these, new pustules appear, which run through the same course. This eruption, when it appears on the face, is termed the milk scall. The decline of the disease is known by the scales drying and falling off without being reproduced. The skin, for some time after, is the seat of an erythematous hue and furfuraceous desquamation. This form of disease generally attacks children; it is not in the least contagious.

Treatment of Tinea. Even the mildest form of this disease is very intractable, and got rid of with difficulty; for it may appear to be giving way under the remedies employed, and afterwards re-assume its former condition. In the early stages of the disease, the local applications should be emollient and soothing, and all irritating applications carefully avoided; the best are bread and water poultices, or lint wetted in warm water, applied over the parts, and then covered with oiled silk; of course the part must first be closely shaved, and kept clean by frequent washing with soap and water; at the same time, attention should be directed towards the general health, which will commonly be found deranged; the bowels should be kept gently open by small doses of some alterative medicine; and sulphuretted waters, such as the Harrowgate, are highly beneficial; as also the occasional use of the general warm bath, and gentle diaphoretic medicines to determine towards the skin. In the more advanced stages, various applications are used, and require to be often varied; for a remedy which at first does good, will soon begin to lose its effect. The ointments generally found to be of most service are pitch and sulphur ointment, or the citrine ointment, or the nitrate of silver ointment, or an ointment composed of two drams of the cocculus Indicus, with an ounce of lard; when any ointment is used, great care should be taken to wash off the former dressing at each application, by means of soap and warm water. When the general health begins to improve under the constitutional remedies, and the eruption has began to decay, lotions are the preferable applications to the part; these may be composed of diluted nitric, or nitro-muriatic acid, with water. Harrowgate water applied to the part, or solutions of the sulphates of iron, zinc, alum, or copper,

or of the nitrate of silver; and the decoction of sarsaparilla with nitric acid given internally, and conjoined with a change of air and sea-bathing, will be found of the greatest service in obstinate cases.

TOAST-WATER. This drink is prepared by simply pouring cold spring water over highly toasted bread, and allowing it to stand for some time, till it becomes impregnated with the peculiar taste of the toast. Some prefer boiling the water before pouring it over the toast, but this is of very little consequence in our opinion. It makes a very good diluent drink for persons whose stomachs will not bear cold water, and allays thirst, perhaps even better in cases of fever and in other diseases, where copious draughts of cold water would be improper. Hard ship biscuit, reduced by toasting to a coffee colour, makes the best toast-water. It should be recollected, that from the nature of the beverage it is very apt to become sour, by standing, and therefore only small quantities should be made at a time.

TOBACCO, or *Nicotiana Tabacum*, is an annual plant, a native of America, from whence it was brought to Europe about the year 1560. At the time of the discovery of America, tobacco was in frequent use among the Indians, and the practice of smoking was common to almost all the tribes; and they pretended to cure a great variety of diseases by this plant. The plant belongs to the natural order Solaneæ, it is glutinous and covered with very short down; the stem upright, four or five feet high and branching; the leaves are alternate, sessile, oval, oblong, and entire on the margin; the superior ones lanceolate; they are about two feet long, of a pale green colour when fresh, and when carefully dried of a lively yellowish tint. They have a strong disagreeable narcotic smell, and a very acrid burning taste; the leaf is the part of the plant used in medicine. The flowers of the tobacco plant are disposed in a terminal panicle; the tube of the corolla long, inflated towards the summit, and dividing into five acute angular spreading lobes, of a rose colour.

The active constituent of tobacco was supposed to be an essential oil, for, by long boiling, the decoction and extract of tobacco become almost inert; and by distillation, an oil is obtained from it, so active, that small animals are almost instantly killed when wounded by a needle dipped in it.

Vauquelin has analyzed tobacco, both in its fresh and prepared state. The expressed juice is manifestly acid, and contains a great quantity of albuminous matter, super-malate of lime, acetic acid, nitrate and muriate of potass, muriate of ammonia, a red matter soluble in alcohol and in water, which swells and becomes charred by heat, and an acrid principle, *nicotin*, on which its peculiar properties depend. The infusion of prepared tobacco is alkaline, and contains, besides the same principles, carbonate of ammonia and muriate of lime, proceeding from the mutual decomposition of the muriate of ammonia and lime, which is added to give it pungency. The nicotin is soluble in alcohol and in water, is volatile, but still may be concentrated by slowly evaporating its solution in water, and still more easily its tincture. Its volatility is also diminished by the malic acid with which it is combined. It is obtained in a state nearest to purity in the distilled water of the infusion of the dry, or of the expressed juice of the fresh plant. This water is colourless, but has the acrid smell and taste of tobacco smoke; with acetate of lead and nitrate of mercury, it forms white precipitates, soluble in acids, and with infusion of galls, one soluble in alcohol and the alkalies. It seems not to be easily destructible, as it is the same in the dry as in the fresh plant, and is not destroyed by oxymuriatic acid.

Medical uses. On the living body, whether taken into the stomach in substance or solution, or into the lungs in the form of smoke, or applied to abraded surfaces, tobacco is capable of producing deleterious effects. It often proves virulently cathartic or emetic, and occasions intolerable cardialgia, anxiety, and vertigo.

The system becomes easily habituated to the action of tobacco, and many people use very large quantities of it in several ways as a luxury, without experiencing any other bad effect than what arises from their being unable to relinquish it after the habit is confirmed.

As a medicine it is exhibited in various forms.

1. In substance. When chewed, it causes an increased flow of saliva, and sometimes relieves the toothache; and reduced to powder, it proves an excellent errhine and sternutatory when snuffed up the nostrils.

2. In infusion in water or wine. Taken in such small doses as to have little effect on the stomach, it proves powerfully diuretic, and was employed by Dr Fowler with very great success, in cases of dropsy and dysuria. An infusion of not more than thirty grains in twelve ounces of boiling water, is often used as a clyster, half being given at a time, in obstinate constipation, ileus, and incarcerated hernia; and it has been recommended in all cases where it is an object to reduce the vital powers. The infusion is also applied externally for the cure of itch, tinea, and other skin diseases.

3d. In the form of smoke, it is injected into the anus by means of a bellows of a peculiar construction. By acting as a stimulus to the rectum, it sometimes succeeds in reviving the vital powers in some kinds of asphyxia, and in evacuating the intestines in cases of obstinate constipation. *Duncan.*

Tobacco is a medicine which we would never

recommend the non-professional practitioner to use in almost any form; but especially do we object to its use as an injection into the anus, either in the form of enema, or in that of smoke. When so used, it is a highly dangerous remedy, (if it deserves the title remedy at all,) and most uncertain in its effects, the smallest quantity of the infusion or smoke often producing suddenly such a degree of prostration of the vital powers that the patient never recovers its effects. The use of the smoke injection in cases of asphyxia from drowning, once so general a practice, is, we believe, now almost universally condemned; indeed, it is difficult to conceive on what principle a remedy producing such prostration of the vital powers could be exhibited in such cases, except to seal the doom of the patient, by effectually preventing any chance of re-action.

TONGUE. An organ found in most animals, and serving in many as the organ of taste; in all for taking in food. We are not justified in considering the tongue as an organ of taste in all animals; and Blumenbach thinks that it serves this purpose in very few genera of birds. The human tongue is a soft, fleshy viscus, very movable in every direction, situated interiorly in the cavity of the mouth, and constituting the organ of taste. It is composed of muscular fibres, covered by a nervous membrane, on which are a great number of nervous *papillæ*, particularly at the point and sides, the *rete mucosum* and *epidermis*. This organ is used in chewing, speaking, swallowing, sucking, and tasting.

TONGUE, Diseases of. 'Inflammation of the tongue occasionally occurs during certain eruptive diseases, and sometimes in consequence of accidental circumstances, as stings in the part from venomous insects; but it is not a common affection, and is generally produced by the abuse of mercury. When that dangerous remedy was used more freely than now, the disease in question was by no means rare. It was then customary to see patients who were made to spit some gallons in a day, for the cure of a venereal affection, supposed or real, with their faces swollen, and their tongues protruding from their mouths, enormously enlarged. This consequence of the exhibition of mercury is more apt to occur in some constitutions than in others, and I have seen it produced in a violent form by the patient's taking only two Plummer's pills.

'The tongue swells rapidly, fills the mouth and protrudes, and is of a brown colour from effused serum. The patient is unable to speak, deglutition and respiration are much impeded, and thirst is excessive. In some instances the inflammation proceeds to suppuration, but the more general termination is resolution.

'In the more mild cases, a cure will generally be procured by evacuating the bowels freely by means of saline purgatives, and by local abstraction of blood; the blood may be obtained either from the application of leeches, from opening several of the enlarged superficial veins, or from slight scarifications. Afterwards astringent lotions may be employed. But in more severe cases, the tumour is productive of very great inconvenience to the patient; and is not unattended with danger; the difficulty in breathing may amount almost to suffocation, and in such cases the treatment must be active. Several free incisions are to be made longitudinally on the dorsum of the tongue; from these the effused fluids are evacuated, a considerable quantity of blood escapes, and by consequence the tumour speedily subsides.

Superficial incisions are not sufficient, and the practitioner should not shrink from cutting tolerably deep; for although the wounds may appear ghastly in the engorged and tumid condition of the organ, yet when the swelling subsides, and the tongue regains its usual bulk, their size is so remarkably diminished, that they resemble trifling scarifications, and in some instances are almost imperceptible. Their extent and number must vary according to the size of the tumour, and the urgency of the concomitant symptoms. If such practice should fail in diminishing the swelling, and affording relief to the respiration, it may become necessary either to perform tracheotomy, or to introduce a gum-elastic tube from the nostrils into the windpipe. If the inflammation terminate in suppuration, the abscess must be treated on the same principles as those occurring in other parts of the body.

Ulcers of the Tongue. 'Such as are not of a malignant kind are readily healed, on improving the state of the digestive organs and general health. The state of the organ indicates that of the chylopietic viscera; it enjoys intimate sympathy with the other parts of the alimentary canal, and why it should suffer from derangements of them is readily understood. The sores may be continued by local irritations, as by friction on encrusted tartar, or sharp or decayed portions of teeth, or by repeated applications of heat, as in smoking. In consequence of long continued irritation, like similar ulcers of the lips, they take on malignant action. The malignant ulcer generally occurs in patients past the meridian of life. Yet I have seen the greater part of the tongue involved in carcinomatous swellings in young subjects.

'Stony induration surrounds the exposed surface to a considerable extent, and the sore presents all the characteristic appearances of cancer. In many cases the induration precedes ulceration, in others follows it. Sooner or later the absorbents are affected, becoming swollen, painful, and hard; and, as in malignant affections of

other parts, the disposition and action is not limited to those in the immediate neighbourhood of the primary disease. The tongue is subject to simple induration, which is totally unconnected with malignant disposition, and subsides on improvement of the digestive organs; occasionally repeated leeching of the part accelerates the cure.' *Liston.*

As regards treatment, removal of the cause of the local irritation whenever it can be discovered, as a matter of course, forms the first and most important step in curative measures; and ulcers which have resisted all the remedies applied for their cure, have healed rapidly under the simplest treatment after removal of some portion of decayed tooth, which had all along been the cause of the disease, and the same effect has followed the relinquishing the constant habit of smoking a 'cutty pipe,' which is also a frequent cause of these ulcerations. The simple ulcer heals under the use of simple washes, such as warm water, or a weak warm solution of opium or borax, during the first stage, afterward a solution of alum with tincture of myrrh, or touching the ulcers with nitric acid, will be found of great service; but perhaps the principal indication consists in correcting the state of digestive organs, by clearing out the bowels at first, and afterwards keeping them gently open, by small doses of rhubarb and carbonate of soda, and by keeping the patient on light and easily digested diet. For malignant disease, the only remedy is early removal of the part, before the system has become affected, either by means of the knife or ligature, and care is required, that the removal be made so extensive as to include every portion of the indurated part; but this of course is an operation which requires an able and experienced surgeon, and therefore we shall not enter upon it here.

TONGUE-TIED. The tongue is said to be tied, when the fold of membrane which binds it to the lower jaw, and which is named the bridle or frœnum of the tongue, is so short as to bind down and confine the point of that organ, so as to prevent free motion, and thereby prevent the infant from sucking, or causes indistinctness of articulation when the child grows up: in such cases the frœnum of the tongue requires to be divided. Doubtless such malformation does sometimes occur, but it is by no means so frequent, as it is represented to be. Anxious mothers and nurses often suppose that children's tongues are confined in this way, when in reality no such imperfection exists, and are frequently very clamorous for the surgeon to perform the operation of dividing the frœnum. In such cases it is hardly necessary to say, that the part ought not to be interfered with. Indeed even when there is confinement, division should not be had recourse to unless the child is prevented from sucking, or taking food, or unless articulation or some other important function of the organ is interfered with. The operation itself, in professional hands, is simple and safe, and perhaps, this is one reason why it is so often performed. The tongue is raised towards the palate by means of a piece of split card, or the fingers, and then the shortened frœnum or bridle, is divided to a sufficient extent with a pair of blunt pointed scissors; but simple as the operation seems, it should never be attempted by persons unacquainted with the anatomy of the parts, as there is a risk of dividing two large arteries which run along the lower surface of the tongue immediately above the frœnum.

TONIC. When applied to muscular action, means a rigid contraction of the muscular fibre, without relaxation, as exemplified in the spasms occurring in lock-jaw and tetanus. The term clonic is applied to sudden spasms of short duration, as those seen in convulsions and epileptic fits, &c.

TONICS. Medicines which increase the tone of the muscular fibre, such as vegetable bitters, diluted mineral acids, preparations of iron, and zinc, and other metals, also the various stimulants and astringents. These remedies act by their influence on the digestive organs, and hence on the whole system. The use of a bitter principle in vegetables, is well exemplified in the case of animals which feed on them, for it has been found, that if restricted to a food which has not a sufficiency of bitter principle, they soon become weak, and eventually die. The benefit which some people derive from ale and other malt liquors, containing hops, is principally owing to the bitter contained in them, for in many cases we find them answer better for invigorating convalescents and dyspeptic invalids, than wines or other stimulants, and therefore the effect cannot depend on the alcoholic principle.

Tonics are useful in cases of chronic weakness, and during convalescence from long continued debilitating diseases; but they are highly improper in cases where there is any degree of excitement, or of inflammation, whether acute or chronic.

TONSILS. Two glandular bodies, of an elongated oval form, lodged between the arches of the soft palate on each side. Each tonsil seems to be composed of an aggregation of a great number of mucous follicles. Its internal surface presents several small openings, which lead into follicles or cells, that secrete a viscid mucous fluid. The tonsils are of reddish gray colour, and exceedingly vascular.

The tonsils are very subject to attacks of inflammation, constituting the disease known by the name of *Inflammatory Sore Throat*, which we have already treated off in a former article (*Throat, Inflammation of*); but besides

that disease, they are also liable to chronic enlargement; generally, however, resulting from a degree of inflammatory action, and of this we intend at present to treat.

Chronic enlargement of the tonsils may take place in children, but we generally meet with the disease in persons from fifteen to twenty-five years of age, although it may arise at any period of life in persons subject to frequent sore throats, or irritation in the neighbourhood of these glands. It was formerly supposed that this affection indicated a delicacy of constitution in the individual; but we frequently meet with it in persons in every other respect healthy and robust. One or both tonsils may be affected, but most usually both are enlarged, the disease is attended with but little pain in the part, and that mostly of a dull nature. The surface of the swelling formed by the enlarged tonsil is irregular, and sometimes ulcerated, and the follicles are often distended with sebacious matter.

From repeated attacks of inflammation the enlargement of the tonsils gradually increases, consequently the swellings of each side approach each other, thereby narrowing the opening of the fauces, and seriously interfering with the functions of the parts. Respiration becomes affected, owing to the obstruction of the throat, and during sleep the patient breathes loudly, and as the enlargement goes on deglutition becomes very difficult, and the patient breathes principally through the nose. Malignant disease is seldom met with in this situation; the enlargement is in general perfectly simple without much change in the texture, or consistence of the part.

Treatment. The swellings may subside considerably under the use of remedies which allay irritation in the parts, as leeches applied to the gums, or at the angle of the jaw, or blisters applied at the angle of the jaw; and by the use of alterative medicines, and the application of astringent gargles, de-obstruent medicines and iodine, as the most efficient, may be given, and not unfrequently with some good effect. In the adult, however, when the affection is troublesome, permanent, and of long standing, the exuberant portion must be removed. This is effected either by means of ligature or excision, that is, cutting off the projecting portion of the swelling; for this purpose it is laid hold off by means of a sharp hook, removed by means of a narrow probe-pointed knife, or scissors; but it is an operation requiring a skilful and dexterous surgeon, as there is risk of injuring important parts. The after treatment consists in keeping the parts clean by the use of mild gargles, and in using stimulating or soothing applications as circumstances may require.

'Excision of the tonsils,' says Mr Liston, 'is said to produce the bad effect of changing the pitch of the voice—taking from the high, and adding to the low notes. I have performed the operation on vocalists to remedy indistinctness of articulation and constant hoarseness, with the desired effect, and without altering either the pitch, quality, or compass of the voice.'

TOOTHACHE. This well-known and painful disease commences with violent agonizing pain in some decayed tooth. Most frequently it occurs in the double or molar teeth; more rarely in the incisores. Although the pain commences and continues in the affected tooth, it is not confined to it; but affects the head and face, darting towards the ear and orbits, and at the same time there is a decided determination of blood towards the head and face, with a sense of tension and pulsation in these parts. The toothache is often merely a rheumatic affection, arising from cold; though, in general, some decayed tooth will be found to exist which gives rise to it. It also occurs during pregnancy, and takes place during some nervous disease, and frequently during hysteria. It attacks persons in all periods of life, but is most frequent in the young and plethoric.

Treatment. A great many remedies, or odontalgics, as they are termed, have been proposed for this painful disease; but they are seldom of much use where the tooth is much decayed. When the affection is purely rheumatic, blistering behind the ears, and leeches applied to the gums, will generally remove, or at least relieve it. But when the pain proceeds from a carious tooth, the pain is much more obstinate. In such cases, it has been recommended to touch the decayed part, or hollow of the tooth, with a red hot wire, pure nitric acid, or oil of vitrol, for the purpose of destroying the affected nerve; to hold spirits in the mouth, or to put a drop of oil of cloves into the hollow of the tooth on a little cotton, or a soft pill made of camphor, opium and oil of cloves. Others recommend oil of turpentine, on a little cotton, to be placed in the hollow of the tooth. The pyrethra root has also been used with alleviation of pain in some cases; it acts as a powerful stimulant to the membrane of the mouth and salivary glands. Perhaps the most useful odontalgic is, the preparation called kreosote, applied with a wire, and dropt into the hollow of the tooth. The following has also been highly lauded in some cases:

Strong nitrous acid, one part.
Spirit of wine, three parts. Mix.

A little of this is to be introduced into the hollow part of the tooth. Besides these local remedies, blisters may be applied behind the ear; and, if the constitution seems to be the cause, small doses of quinine may be given, after the bowels have been freely opened. Stuffing a decayed tooth when it is far gone, and there is pain from the exposed nerve, is not likely to be useful. The pressure of the sub-

stance with which it is stuffed, upon the nerve, being more likely to aggravate than to relieve the pain. When the pain is not confined to one tooth, and the gums are inflamed and swollen, leeches applied to the part are of great service. Very generally all the measures which we have detailed prove inefficacious, and then the only remedy is the radical and surest one of extracting the diseased tooth.

TOPICAL. Remedies applied externally to the suffering part, and intended to have an effect there only, such as ointments, cataplasms, &c.

TORQUAY. A large village in Devonshire, situated on the coast, in a cove of Torbay. The climate is drier than most places in the south-west coast of England; and it is much freer from the dense raw fogs which frequently prevail in other places on the coast. The air is pleasant and bracing, whilst, at the same time, the town is completely sheltered, so that patients are perfectly secure from the effects of the cold winds during winter. Dr Abercrombie, who has been in the habit for some years of sending patients affected with chest diseases to winter in Torquay, states, "that he has had much reason to be satisfied with the results, and he observes, that, should farther observations show that the climate of these districts will really bear comparison with the climates of the south, it is always to be kept in mind, that it presents other advantages to the invalid, in which none of them can compare with it for a moment; an easy journey, British accommodations and comforts, British society, and British physicians."

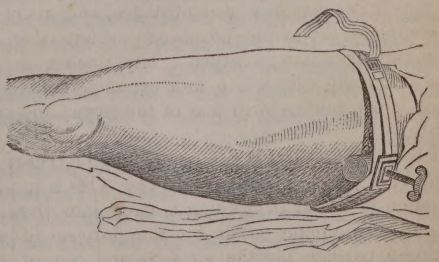
TOURNIQUET. An instrument used for the purpose of arresting the flow of blood through a limb by compressing the vessels. Till the invention of this instrument, surgery remained in an extremely defective state indeed. No operation of importance could be performed on any of the extremities, except at great hazard to life; and large wounds frequently proved fatal from the want of it, which otherwise would have been unattended with danger. As the invention of the tourniquet is claimed by different persons, we shall not here pretend to say from whence it originally came. That which was first used was exceedingly simple; insomuch that we are apt to feel astonished that its use was so long of being thought of.

Its construction was as follows. A small pad being placed over the course of the principal artery of a limb, a circular rope, or bandage, was made to pass twice round it, and a small wooden handle being then introduced into one of the folds of the rope, for the purpose of twisting it, the cushion by these means was pressed with so much force upon the artery, as to put an effectual stop to the circulation in all the under part of the limb. As this simple form of the instrument can always be readily made with a pocket handkerchief, or a piece of cord, and a piece of cork or flat stone for a pad, and any small stick for a rack pin, it is one which is always at hand where persons have sufficient presence of mind, and may often be the means of saving life in cases of accident, by arresting the bleeding until a surgeon arrives.

Mr Petit, an eminent surgeon at Paris, was the first who improved the tourniquet. He connected the circular bandage with a screw (vide Plate of Surgical Instruments) which was so contrived as to produce pressure on the principal artery of the limb. It has also this great advantage, that the surgeon can manage it himself, without the aid of an assistant. The tourniquet of Petit, slightly modified, is the instrument at present used for the purpose of temporarily arresting hemorrhage during great operations: such as amputation, &c.; although, when proper assistance can be obtained, pressure made on the principal artery with the fingers of an assistant is perhaps preferable.

The manner of using the screw tourniquet is this: let a cushion, or firmly rolled cotton bandage, about an inch and a half in diameter and three inches in length, be placed on the course of the main artery of the limb, and secured by a turn of a cotton roller of the same breadth with the pad itself; the screw of the tourniquet is then placed over the pad, or, as some prefer it, at a short distance from it; the loose end of the circular strap is then to be drawn through the buckle, so as to be tight round the limb, and then the instrument should be quickly screwed up at once. Before applying the instrument, we should notice, that the screw works well, and that it is completely down, otherwise, if we require to tighten it much during the operation, we might find it impossible to do so, owing to the screw being out. And in tightening the circular band, we must notice that the buckle is not too near the screw-plate of the instrument, which, of course, would prevent the screw working, and require the instrument to be undone.

The appearance of the instrument will be seen in our Plate of Surgical Instruments, and its



appearance when applied to a limb is represented in the accompanying wood-cut.

The late Dr Kellie of Leith found that by placing the tourniquet over the common femoral arteries, at the upper part of the thigh, he could arrest, or at least shorten, the cold stage of intermittent fever, by altering the distribution of the blood. See *Surgical Instruments*.

TOXICOLOGY. The science of poisons and antidotes. The works of Frank and Orfila Christison are distinguished in this branch, also Buchner's and Witting's. See *Poisons*.

TRACHEA. The name given by anatomists to the windpipe. The trachea is a cylindrical tube which extends from the cricoid cartilage of the larynx, to the second or third dorsal vertebra, where it divides into the bronchial tubes. It is covered in front by the skin fascia, and the sterno-hyoid and thyroid muscles, and the isthmus of the thyroid gland crosses its upper part in front, whilst below, in the young subject, it is also covered with the thymus gland; beneath the muscles already mentioned, we find lying in front of it also a plexus of veins, which return the blood from the thyroid body to the great vena innominata. Posteriorly the trachea rests on the œsophagus, which, however, at the lower part of the neck, inclines a little towards the left side of the neck. On each side of the trachea are placed the great vessels of the neck, the carotid arteries, and internal jugular veins (see plate of *Blood-vessels*) together with the pneumo-gastric, and great sympathetic and Laryngeal nerves. After it has passed behind the sternum into the chest, the arteria innominata, and left vena innominata, cross in front of it. The trachea terminates by dividing into the right and left bronchial tubes, which afterwards enter into the substance of the lungs, subdivide into numerous ramifications, and ultimately form what are termed the air-cells. The tube of the trachea is composed of fibro-cartilaginous rings, varying in number from sixteen to twenty, and of membranes which connect these rings. The rings in the human subject do not extend completely round the tube, they exist only at the front and sides, but are deficient posteriorly. A thin, elastic, fibrous membrane forms the circumference of the tube, serving to connect the cartilaginous rings, which seem as if developed in its substance, and also to complete the circle posteriorly where the fibro cartilages are wanting. The trachea is lined internally with a fine mucous membrane, which is continuous with that of the larynx and mouth.

TRACHEOTOMY, OR BRONCHOTOMY, ALSO LARYNGOTOMY. This is an operation in which an opening is made into the larynx, or windpipe, either for the purpose of making a passage for the air into and out of the lungs, when any disease prevents the patient from breathing through the mouth and nostrils, or of extracting foreign bodies, which have accidentally fallen into the windpipe; or, lastly, in order to be able to inflate the lungs, in cases of sudden suffocation, drowning, &c. Its practicability, and little danger, are founded on the facility with which certain wounds of the windpipe, even of the most complicated kind, have been healed, without leaving any ill effects whatever, and on the nature of the parts cut, which are not furnished with any vessel of consequence.

TRAGACANTH. *Astragalus verus*, or *astragalus tragacanthe*. *Gum tragacanth*.

The *gum tragacanth* of commerce, or that sold by apothecaries and druggists, is said to be the produce of several species of astragalus.

The *astragalus verus* is a small shrub, two or three feet in height, and its stem about an inch in thickness, and is of the class diadelphia, and order decandria. The substance known by the name of gum tragacanth, which is the produce of this and the other species of the same genus, is imported in small thin vermiform pieces, of a whitish colour, semi-transparent and striated, inodorous, nearly insipid, impressing only a very slight bitter taste, as it dissolves completely; pulverent in frosty weather only, and does not form, like gum Arabic, a smooth uniform mucilage with water. This gum is a natural exudation from the stem of the genus astragalus. The mechanical cause of the expulsion of this juice, is dependent on the unequal hydrometric properties of the different parts of the stem. The wood, absorbing more moisture from the air than the bark, which reaches it through fissures in the latter, swells, and, in consequence of its enlargement, distends the bark, which, by the internal pressure of the wood, gives way, and the gummy juice which resides in the bark and albanum escapes. This explanation is quite in conformity with the facts mentioned by travellers. The tragacanth flows only abundantly during the night, and a little after sunrise. A cloudy night, or a heavy dew, is necessary for its plentiful production; for the shepherds of Lebanon only go in search of this substance when the mountain has been covered during the night with thick clouds.

Tragacanth is the produce of Crete, mount Lebanon in Syria, Asia Minor, Armenia, and Northern Persia. And there are two kinds met with in commerce, both of a whitish yellowish, or yellowish brown colour, with a dull splintery fracture, and the other characters above named.

The constituents of this gum are carbon, hydrogen, oxygen, according to Hermann; and arabina, bassorine, water, and oxalate of lime, according to Bucholz and Guerin. Starch is also recognizable in small quantity, but chemists are not agreed as to its composition. The gum possesses no great powers as a medicine, although it is a most useful auxiliary in medicine, and

serves many purposes in domestic economy. Its medical virtues, or its effects on the human body, are demulcent, emollient, and nutritive. It is used in the form of powder, rather as a vehicle for active and heavy medicines, than on account of any particular virtues of its own. The college of London order a compound powder, which is prepared as follows:

Powder of gum tragacanth.
——————— Arabic.
Starch. Of each one ounce and a half.
Refined sugar, three ounces.

Powder the sugar and starch together, then having added the tragacanth and gum Arabic mix all intimately.

This powder is an excellent demulcent, and useful in catarrh attended with tickling cough; also in gonorrhæa and stranguary, by being combined with nitre: say one dram of this powder, and from five to ten grains of powdered nitre, three times a day in the latter complaints. When it is used for a tickling cough, it may be formed into lozenges or balls by the addition of a little rose, orange flower, or cinnamon water, according to the taste of the patient. And one of these lozenges or balls may be allowed to dissolve gradually in the mouth. This is at once a safe, simple, and economical cough medicine, suited to coughs of every description. It is, however, an indispensable prerequisite, that the gums and starch should be of the best quality. Arrow root may be substituted for the starch. A mucilage of the gum is likewise ordered, and is made by dissolving two drams of the gum in half a pint of boiling water, for twenty-four hours, then triturating the mixture till the gum is dissolved, and then press it through linen cloth. This form of the medicine, when sweetened, is employed as an emollient, in doses of a tea-spoonful or two occasionally. Owing to the very great quantity of thick mucilage the gum yields, it is used in the arts and domestic economy.

TRAINING. Methodical training is used in the present day chiefly for the purpose of fitting professed boxers, or pugilists, for their demoralizing occupation; and hence the process has come to be regarded with a degree of disgust by the well-regulated mind; for the habits and propensities of pugilists are not such as to recommend their mode of education to others. But it should be kept in mind, that a system good in itself may be turned to bad purposes, and therefore, we should not reject the benefits which may be derived from training, merely because some have made a bad use of these benefits. In a medical point of view the changes induced on the human body by training, are highly curious, interesting, and instructive; for the process which is now brought to a high degree of perfection, throws great light on dietetics, nutrition, and regimen; and among the great nations of antiquity this subject engaged the attention of philosophers, lawyers, and states men, and their celebrated games, as the Olympic, were instituted for the purpose of encouraging habits of patient endurance and active exertion. We have extracted the following rules for training from a work published in 1827; but before laying these before our readers, we would first remark, that whilst even the weakest constitutions, if the person be young, is capable of being wonderfully improved by the process of training, still it must be evident that we cannot hope to bring up to the athletic standard, persons in whom there originally exists any marked disease, or who have not already some degree of stamina, and therefore we must be cautious lest we carry on the system too far or too rigidly with persons of originally weak habit of body. Again, the author from whom we quote the accompanying rules has omitted to mention what we believe is now well ascertained, viz. that when pugilists and others under strict methodical training, have arrived at the highest point of perfection, they soon begin to fall off in condition, the system being unable to be kept up constantly to such a point. Now we think that this fact shows the necessity of occasional relaxation of the strict dietetics and regimen prescribed; for it never was intended that man should live constantly according to such strict specific rules, and we know from experiment that animals fed on any one article of food, however nutritious, begin after a time to fall off, and if the regimen be continued, soon weaken and die. Hence to those who wish to consult the rules of training, as affording hints on hygiene, diet, and regimen, should bear in mind that these rules are intended for persons who are to be brought up to a certain standard of strength at a given date, and not to be constantly used; and therefore in ordinary regimen we must vary our diet and exercise from time to time, as we find it agree with our state of health and other circumstances.

'*Preparative medicine.* In the commencement of training, it is, for the most part, desirable to take a gentle emetic of from sixteen to twenty grains of ipecacuanha powder, in water, and in two days after a mild purge, for which purpose I think there can be hardly any thing superior, in this instance, to two grains of calomel and five grains of compound extract of colocynth, made into a pill, and taken at bed time. When the habit is gross and the secretions particularly unhealthy, this pill may be advantageously repeated to the second or third time, at intervals of a week; but if these circumstances are not present, one purge will suffice. The emetic and purgative now ordered have the effect of speadily clearing the stomach and bowels, and thus getting rid of any accumulations that may be oppressing those important organs.

'*Solid food.* The diet of persons when trained, must be extremely simple, consisting almost exclusively of animal food, stale bread or biscuit, and the most digestible vegetables; veal and pork are never given, and lamb but seldom. Beef, mutton, and venison, are the chief meats. Most men will live longer on beef, without change, than on any other kind of animal food, and it is the most nourishing, but mutton and venison are reckoned to be most easily digested. The meat must always be fresh, for if salted it would occasion indigestion and thirst. Fat being of a greasy nature fouls the stomach, and must be avoided; but the lean of fat meat is the best. Sometimes, for a change, fowl, rabbit, or partridge may be allowed once a week. The legs of fowls being very sinewy are much approved. No fish whatever is allowed, being indigestible, and deficient in point of nourishment. No cheese is given on any account, and but very little butter, sometimes none. When a good measure of strength has been acquired, eggs may be permitted very lightly boiled, but not more than one in the day. A little turnip, French bean, or potatoes, may be taken after the individual has been in training for three or four weeks, or more, and the tone of the digestive organs improved, but they must be laid aside if they create the slightest uneasiness. Soft or new bread is never given. Biscuit is very proper, and indeed, in most instances to be preferred even to stale bread. Pies and puddings are never permitted, nor any kind of pastry. The only condiments allowed are salt and vinegar. Salt may be taken in moderate quantity, but always short of producing thirst. A little vinegar also is not objectionable, especially when there is a tendency to corpulence. As to the mode of dressing the animal food taken, it is far better to have it broiled than roasted or boiled, by either of which nutriment is lost, and particularly by boiling. Care should be taken not to have the meat too much done. The quantity of solid food indulged in must be very moderate; this must in some measure, depend on the circumstances of age, strength of the digestive powers, and nature of the indisposition present; but as a general rule, the solid food ought not to exceed sixteen or seventeen ounces a day.

'*Liquid food.* It is an established rule in training, that the less we drink in moderation, the better; because too much liquid dilutes the gastric juice in the stomach, (the grand agent in digestion,) and encourages soft unhealthy flesh. Much drinking also promotes undue perspiration, which is weakening, if not occasioned by exercise. On no account must the quantity of three English pints, during the whole day, be exceeded, taken at breakfast and dinner, and a little after supper. In many instances, six and twenty ounces is as much as is proper. For breakfast and tea, the liquids may consist of tea, or milk, and at dinner and supper, home-brewed malt liquor, or wine. In training merely for strength, good old malt liquor drawn from the cask, is reckoned the best drink at dinner and supper; but in training for health malt liquor is not always found to agree; the patient must in a degree be guided by his own feelings on this and some other points, although, I believe home-brewed malt liquor will in most cases be found of much service, particularly after a month's close training. Jackson, the celebrated trainer, affirms, 'if any person accustomed to drink wine would try malt liquor for a month, he would find himself much the better for it.' Sometimes malt liquor may be advantageously taken with a little toast in it; the quantity must not exceed half a pint at dinner, and a third of a pint at supper. If the person trained insists on wine, white wine is preferred to red; and two or three grapes may be allowed after dinner, but none after supper. It may be taken diluted with water, or not, as it is found to agree best. Spirits are never permitted on any consideration whatever, not even with water. Liquor is never given before meals unless in cases of extreme thirst. Under thirst, the liquor should never be taken in great draughts but by mouthfuls, which quench the thirst better, the chief object required. No fluid is ever taken hot; the water drunk should be as soft as possible; toast and water is very proper.

'*Exercise.* Trained men should always begin their exercise early in the morning: in summer at six and in winter at half past seven, or as soon as it is light. The best exercises are walking, riding on horseback, friction with the flesh-brush, fencing, quoits, tennis, playing at shuttle-cock, and the use of the dumb-bells. These are used alternately as convenience serves, but no day must be suffered to pass without one of the first two being used as an out-door exercise, and also one of the remainder as an exercise at home. The time of exercise abroad is never to be less than four hours, and should generally be from five to six hours, taken at twice or thrice; the period of the in-door exercise being at least one or two hours. If a muscular man during his training gets much thinner, his exercise must be reduced; but if he gets fatter or more muscular, it is a proof that it agrees with him. Captain Barclay says, 'Besides his usual or regular exercise, a person under training ought to employ himself in the intervals in every kind of exertion which tends to activity, such as cricket, bowls, throwing quoits, &c., that during the whole day both body and mind may be constantly occupied.'

The great object of exercise is to increase and regulate all the secretions and excretions, more particularly the secretions of the stomach, intestines, and liver, and the excretions by the

skin and kidneys, to augment the size and power of the muscles, to impart tone to the nerves; and where the habit is corpulent, to take off the superfluities of flesh and fat, to reduce the quantity of blood, and to make it thinner and lighter. By these means a person gains a good appetite, a quick digestion, serenity of mind, and a surprising increase of wind and strength. Exercise, on the whole, is undoubtedly the most essential branch of training. It is a general rule that perspiration from exercise never weakens. The union, however, of vigorous exercise and pure air, is the grand secret for the acquisition of strength. Diet itself seems to be but a secondary consideration, provided the quantity be small.

Air. The necessity of pure air is uniformly insisted on in every kind of training. The more man is in the open air the firmer his flesh becomes, and trained persons soon learn almost to disregard the weather, only they must change their clothes if wet. Rising early in the morning is considered indispensable; in summer at five or six and in winter at seven. Among the ancients, to be exercised in a pure salubrious air, was deemed of essential importance. The principal schools of the Roman Athletæ were accordingly established at Capua and Ravenna, places, the air of which was reckoned the most pure and healthy of any in Italy. They carried on their exercises in the open air, in all sorts of weather, the changes of which soon ceased to affect them. Under training for health, it is indispensable to breath the open air for four hours at least a day.

Sleep. Persons trained for health and strength ought to go to bed early, (at ten o'clock precisely,) and are allowed from seven to eight hours sleep. As they take a great deal of exercise they require rest, and eight hours sleep may be safely allowed, but very rarely more. Under a proper system of training, the sleep is sound, almost unbroken, and therefore exceedingly refreshing. In addition to the preceding rules, it should be observed, that great cleanliness of the person is necessary, and therefore bathing is recommended. But bathing, either in tepid or cold water, has also considerable effect in strengthening the body, and may consequently be used twice or thrice a week, when practicable. For very weakly persons, the tepid bath at about 73°, brought down gradually to 60°, is to be preferred, especially in cold weather; but stronger patients may use the cold bath. The cold or tepid shower bath is very useful. When the bath cannot be had, I recommend spunging the whole body with water, (the chill hardly taken off,) every morning on getting up, following it quickly with a good deal of rubbing with a hard towel. Keeping the feet perfectly dry at all times is highly necessary.

Effects of training on the body. All my readers will readily perceive that the training now described must invariably have great and important effects on every part of the body, and especially on the head, the stomach, the lungs, the skin, the bones, and the nerves. In regard to the head, a man in the best ordinary health, when he strikes or receives a few blows becomes giddy, but this defect is corrected in the course of training, and giddiness is prevented. Severe blows on the head are also soon recovered. Its beneficial effects on the stomach and lungs are remarkable. The appetite is sharpened and the digestive powers so improved, that all sense of uneasiness and oppression at the stomach are removed by it, and the food taken is digested easily and perfectly. Jackson the trainer states, that a course of training is an effectual remedy for bilious complaints. By improving the condition of the lungs, training insures a free and powerful respiration, which is a sign of good health, and is essential to a fresh colour of the face, to lively spirits, to cheerful feelings, and to the healthy and vigorous action of the body. The chest is made much more open by it. Boxers, when trained, surprisingly improve their wind, as it is said; that is, they are enabled to draw a deeper inspiration, to hold their breath longer, and to recover it sooner after it is in a manner lost. It has likewise a great influence on the skin, which it renders clear and smooth, well coloured and elastic, although formerly subject to eruptions. Even the skin of a fat person, when he grows leaner under training, does not hang loose about him, but becomes elastic and tight. On the bones and nerves training has considerable effect. The former become much harder and tougher; indeed, it is well known, that the bones of race-horses, for example, are as hard as ivory, and that the bones of boxers are very seldom broken, even under the violent blows they receive. The nerves are most effectually strengthened by it; so much so, that it is asserted that no trained person was ever known to become paralytic, or to continue under nervous depression. The shape likewise is greatly improved, the belly in particular is reduced, which is absolutely necessary for a freer respiration. The chest is expanded, and different muscles and parts which are unduly enlarged, are reduced, while those which are preternaturally small, gain an increase of bulk. We have a proof of this in the fact that persons who are regularly and constantly exercised, as fencing masters, &c., retain their appearance, carriage, and shape to the last; which is much in favour both of their health and longevity. Such is the nature, and such the effects of training, by the processes described. As an able writer correctly remarks, the nature of the human frame is totally altered, and in the space of a few months, the form, the character, and the powers of the body are completely changed, from gross to lean, from weakness to

vigorous health, and from a breathless and bloated carcase, to an active and untiring; and thus the very same individual, who but a few months before, became giddy and breathless on the least exertion, has his health not only improved but frequently is enabled to run many miles, with the fleetness of a greyhound, or in a shortness of time hardly to be credited, to walk above a hundred. But these effects are not only remarkable, they are also permanent. In training for wrestling or fighting, indeed, men are brought to the very top of their condition, as it is termed, in a very short period, by carrying the process to an extreme, and it is found they cannot be kept in that condition for any length of time; but in training for health our objects are different, and therefore the mode of proceeding is in some measure different; we proceed in as certain though a less forcible manner; in order that the effects should be both great and lasting.

In conclusion, I would express my hope that the hints here given respecting the uses of training may be found of advantage, not only to my unprofessional but likewise to my professional readers. Medical men pay too little attention to it in the treatment of chronic diseases.

TRANSFUSION. The transmission of blood from one living animal to another. Harvey was thirty years before he could get his discovery admitted; but as soon as the circulation was acknowledged, people's minds were seized with a sort of delirium: it was thought that the means of curing all diseases was found, and even of rendering man immortal. The cause of all our evils was attributed to the blood: in order to cure them nothing more was necessary but to remove the bad blood, and to replace it by pure blood, drawn from a sound animal. The first attempts were made upon animals with complete success. A dog, having lost a great part of its blood, received, by transfusion, that of a sheep, and became well. Another dog, old and deaf, regained, by this means, the use of hearing, and seemed to recover its youth. A horse of twenty six years, having received in his veins the blood of four lambs, recovered his strength. Transfusion was soon attempted upon man. Denys and Emerez, the one a physician, the other a surgeon of Paris, were the first who ventured to try it. They introduced into the veins of a young man, an idiot, the blood of a calf, in greater quantity than that which had been drawn from them, and he appeared to recover his reason. A leprous person, and a quartan ague, were also cured by this means; and several other transfusions were made upon healthy persons without any disagreeable result. However, some sad events happened to calm the general enthusiasm caused by these repeated successes. The young idiot we mentioned fell into a state of madness a short time after the experiment. He was submitted a second time to the transfusion, and was immediately seized with a *hæmaturia*, and died in a state of sleepiness and torpor. A young prince of the blood royal was also a victim of it. The parliament of Paris prohibited transfusion. A short time after, G. Riva having, in Italy, performed the transfusion upon two individuals, who died of it, the pope prohibited it also. Of late years transfusion has been sometimes successfully employed in cases of great loss of blood, as from flooding, and where patients were sinking from the first effects of violent injuries; and the injection of stimulating fluids into the veins has also been used with occasional success in similar cases, and in certain debilitating diseases, such as Asiatic cholera.

TREPANNING, OR TREPHINE. The operation of opening the skull, by means of a surgical instrument, adapted for the purpose. The instrument used is called a *trepan*, or *trephine*, and consists of a handle, to which is fixed a circular saw, or hollow iron cylinder, of about an inch in diameter, called the *crown*, from the centre of which projects a sharp perforator, called the *centre-pin*. The upper part of the centre-pin screws into a hole at the top of the crown; its use is to steady the trepan before the teeth of the saw have made a sufficient furrow to prevent it from slipping; for which purpose it is pushed down below the level of the teeth of the saw, and fixed in the centre of the bone to be removed. The trephine differs from the trepan in having its crown fixed upon and worked by a common transverse handle, like a gimlet, instead of being turned by a handle, like a wimble or centre-bit, as is the case with the trepan. The former is used in England: the latter is preferred by the surgeons of continental Europe. The trephine performs only a semicircular motion, imparted by the pronation and supination of the hand, the teeth being so arranged as to cut, whether the instrument is turned from right to left or the reverse. The trepan is turned completely round and round on its own axis. The operation is performed in the following manner:—The hair is first removed from the portion of the skull to be taken out, and incisions, in the form of a cross, or of the letter T or V, are made quite through the scalp, in order to expose the bone. The centre-pin is then fixed, the trephine or trepan is put in motion, as above described, and the operation is continued until the bone is sawn through, which is then removed by the forceps. The divided scalp is finally placed, as nearly as possible, in its natural situation, and dressed. The aperture in the skull gradually becomes closed with soft granulations, which slowly acquire a hard consistency. Until this is the case, the patient must wear a thin piece of

horn, or plate of metal over the aperture. The operation of trepanning is resorted to only for the purpose of relieving the brain from pressure. Such pressure may be caused by the depression of a portion of the cranium, or it may be produced by an extravasation of blood, or by the lodgment of matter betwixt the skull and the *dura mater*, occasioned by a blow upon the head, or the inflammation of the membranes of the brain.

TROCAR. (Corrupted from *Trois-quart*, French, a *three quarters;* from the three sides forming the point of the instrument.) The name of an instrument used for tapping or puncturing collections of fluids; as, for example, in dropsy or hydrocele. The trocar is fitted with a tube, or canula, as it is called. After the trocar has entered the collection of fluid, it is withdrawn, the canula pushed onwards, and the fluid thus drawn off.

TROCHES, OR LOZENGES. Are composed of powders made up with glutinous substances into little cakes, and afterwards dried. This form is principally made use of for the more commodious exhibition of certain medicines, by fitting them to dissolve slowly in the mouth, so as to pass by degrees into the stomach, or to act upon the pharynx and top of the trachea; and hence these preparations have generally a considerable proportion of sugar, or other materials grateful to the palate. The lozenges of the confectioner are so superior in elegance to those of the apothecary, that they are almost universally preferred. (Dr Duncan's Dispensatory.) Since the late discoveries of the active principles of many medicines, a great many, and some very useful and efficient, medicated lozenges are prepared by confectioners.

TRUFFLE. A genus of mushrooms remarkable for their form, and for growing entirely under ground, at the distance of a few inches from the surface. Unlike the *lycoperdom*, or puff-ball, they are not resolved into a powder at maturity, but their substance becomes gelatinous. Only few species are known, which are found chiefly in temperate climates. Some of them have the rind rough, with small tubercles; others have it entirely smooth. They attain the diameter of two or three inches.

The common truffle, so celebrated in the annals of cookery, is said to inhabit all the warm and temperate parts of the northern hemisphere; but we are in need of further evidence to prove its existence on the American continent. In certain districts it is astonishingly abundant, as in Piedmont, and at Perigord, in France, which latter place has, in consequence, acquired celebrity for producing it. They abound most in light and dry soils, especially in oak and chestnut forests; but it would be difficult to procure them any where, were it not that hogs are extremely fond of them, and lead to their discovery by rooting in the ground. Dogs are sometimes taught to find this fungus by the scent, and to scratch it up out of the ground. The season for collecting continues from October to January. The truffle is usually about as large as an egg; is entirely destitute of roots; the skin blackish or gray, studded with small pyramidal warts; the flesh white, gray or blackish, varied with black or brown veins. They are prepared for the table in various manners, but should be eaten with moderation, as they are difficult of digestion. They may be kept in ice, or covered with lard: in some countries they are dried. They were in use among the ancient Greeks and Romans. Several varieties are distinguished, and, besides, some of the other species are much esteemed for culinary purposes.

TRUSS. A bandage or apparatus employed in ruptures (see *Hernia*), to keep up the reduced parts, and hinder a fresh protrusion. It is essential to the health of a large portion of the human race. A truss ought so to compress the neck of the hernial sac, and the ring, or external opening of the hernia, that a protrusion of any of the contents of the abdomen may be completely prevented. It should make an equal pressure on the parts without causing inconvenience to the patient, and be so secured as not easily to slip out of its right position. Every truss consists of a pad, for compressing the aperture through which the hernia protrudes, and of another piece which surrounds the abdomen: to these are sometimes added a thigh-strap and a scapulary, which passes over the shoulder. See *Rupture* and *Surgical Instruments*.

TUBERCLE. The nature and character of tubercles have long engaged the attention of pathologists; on this subject a considerable difference of opinion still prevails. According to Laennec, tubercles go through three stages, each presenting a distinct set of characters. In the first they are small, transparent, colourless, about the size of a millet seed, and are thence termed miliary tubercles. In the second they become yellow, opaque, and firm; in which form they are said to be crude, their consistence being about that of cheese. In the third stage the mass becomes softened, a passage for it is made by ulceration into some of the neighbouring bronchi, through which it is evacuated, and so is formed a tubercular cavity. Other writers are of opinion that they are nothing but the lymphatics of the lungs slightly altered in their appearance. This idea was long ago inculcated by Morton and Portal, and more recently by the late M. Broussais of Paris.

TUMORS. Tumors or wens are new productions, and not part of the original structure of the body. Blood may have been effused and

become organized, forming a nucleus which gradually enlarges, receiving nourishment from the vessels which enter it. The blood-vessels and nerves may enter the new growth either by a narrow pedicle, or it may present an extensive surface, receiving vessels at various points from the neighbouring parts. As the tumor enlarges the surrounding parts yield, and, as the cellular tissue around it becomes condensed, form a covering for the new part, and a boundary betwixt it and the other structures in the neighbourhood. The vessels continue to enlarge and to assume a greater degree of action, and the new growth increases more rapidly, and thus tumors often attain a very large size. Tumors differ very much in structure, but the external appearance affords no certain index of the nature of the growth. The history of the case, however, together with the feel and general external character of the tumor, will lead the experienced surgeon to form a pretty correct notion of its internal structure.

Tumors are divided into two great classes, solid and encysted; or, what is of greater consequence, simple or benign, or malignant.

The solid tumor is generally enveloped in a dense cellular sheath, formed, as we have already mentioned, by condensation of the cellular tissue during the enlargement of the new growth; this covering separates the disease from the healthy parts, shutting out the latter, as it were, as much as possible from any connection with, or participation in, the injurious tendencies of the former. The cyst of encysted tumors, on the contrary, must be considered as an integral part of the tumor; for if when we remove one of these tumors, any part of the cyst be left, the disease is certain to be reproduced. The principal forms of simple solid tumor are the adipose or fatty, the fibrous, exostosis, or bony tumor. The malignant are the encephaloid, or brain-like tumor, melanoid, fungus, hæmatodes, or bleeding cancer, and the schirrous or carcinomatous tumor, and osteo-sarcoma, a species of tumor attacking bone.

Encysted tumors generally occur on the scalp, and are divided, according to the nature of their contents, into atheromatous, or those containing a curdy matter; meliceritous, containing a thin brown semifluid substance like honey, and steatomatous, or those containing a fatty matter; but, like all other morbid products, the contents of these tumors or wens, as they are called, are very variable.

It would evidently be of little use in a work like the present, to enter on a particular description of the different tumors, or the various operative proceedings necessary for their removal, as these are quite out of the department of the domestic practitioner, and we shall therefore be very brief indeed on the treatment of these growths. It may be observed generally, that tumors derive no benefit from external applications, such as liniments, friction, &c. If a tumor is to be removed by such applications, it is evident that they must be of a nature to prevent the deposit of new matter, for if they could effect that, the absorbents doubtless would gradually remove what already existed, for absorption is always going on in tumors as well as in other parts of the body, although, from the formation of new matter, its effects are not perceived. But such remedies are at present unknown, for although by the use of iodine, or mercury, and some other discutients as they are termed, a swelled gland which has become enlarged from infiltration of serum or lymph into its texture, may be diminished, to trifle so with a new and independent growth is altogether absurd, and therefore it is injudicious to employ such temporizing measures; for even though a tumor may at first appear simple, yet from various causes it may take on a malignant action, and its removal may be only consented to when it is too late. In such tumors the knife is only to be depended on.

TUNBRIDGE WELLS. A large hamlet, thirty-six miles south-east from London, partly in the parish of Tunbridge, and partly in that of Speldhurst. It is nearly two miles in length, and owes its origin and importance to the celebrated mineral waters in the vicinity, consisting of four divisions, Mount Ephraim, Mount Pleasant, Mount Zion, and the Wells, properly so called. The air of this district is remarkably pure and salubrious, the appearance of the country inviting, and the aspect of the villages picturesque, appearing like a large town in a wood, interspersed with rich meadows, and enclosing a large common, in which are walks, rides, handsome rows of trees, and various other objects. Here are excellent accomodations for visitants, also assembly rooms, a theatre, libraries, chapel, market place, &c. The waters are chalybeate, extremely clear and pellucid at the fountain head, and the taste is strongly impregnated with iron. They are of great use in removing complaints arising from sedentary habits, weak digestion, and nervous and chronic disorders. The discovery of their virtue is ascribed to Dudley, lord North, a courtier in the reign of James I., who was restored to health by drinking them.

TURMERIC. The root of the *curcuma longa*. It is brought from the East Indies, and is very rich in a yellow colour, which has great brightness, but little durability. Common salt and sal-ammoniac are the mordants best adapted to fix it. The root must be reduced to powder to be fit for use. It is sometimes employed to give the yellow made with weld a gold cast, and an orange tinge to scarlet; but the shade which the turmeric imparts soon disappears in the air. It has an aromatic smell, somewhat resembling

that of ginger, and is much cultivated in the East Indies, where it is in common use as a seasoning for ragouts and other dishes. It constitutes a principal ingredient in curry powder, and in this form is used in great quantities both in India and Europe.

TURNIP. A cruciferous plant, belonging to the same genus with the cabbage, extensively cultivated for the sake of its esculent root. This latter is turbinate, more or less depressed, but varies somewhat in colour, size, and form in the subvarieties produced by culture. It is of a fleshy consistence, and has a sweet, somewhat pungent, and agreeable taste. The radical leaves are oblong and lyrate; the upper ones entire; the flowers are usually yellow. The smaller varieties, in general, are most agreeable to the taste, and most esteemed; but the quality depends very much on the nature of the soil, which should be sandy and light. The ordinary season of sowing is from the end of June to the beginning of August; but if it is desired to procure them throughout the season, they may be sown from March till September. Turnips are a wholesome article of food, much in use. The large-rooted varieties have been employed in Europe for fodder, during the winter season, from time immemorial. They are given to cattle to fatten them, and also to sheep, hogs, &c. It has been ascertained that the most advantageous mode of field culture is by drills, which will produce crops of treble the weight of those grown in the broad-cast manner. The *ruta baga*, or Swedish turnip, is a variety of *B. campestris*, often cultivated. The root is large, of a yellowish colour; but, in general, it is less esteemed than the common turnip.

TURPENTINE. A resinous juice, extracted from several trees belonging to the genus *pinus*. English turpentine is from the Scotch fir (*P. sylvestris.*) Venice turpentine, which is more thin and aromatic, is from the *pinus larix*. Strasburgh turpentine, is from the *pinus picea*. The common American turpentine comes from the *pinus palustris*, which grows abundantly in the Southern States. All these kinds of turpentine, and many others, known in commerce, are obtained by exudation and hardening of the juice flowing from incisions into the pine trees. To obtain the oil of turpentine, the juice is distilled in an apparatus like the common still; water is placed with the turpentine, and the residuum and product exceed the original weight; 250 pounds of good turpentine produce 60 pounds of the oil. Sixteen ounces of Venice turpentine, being distilled with water, yielded four ounces three drams of oil of turpentine; and the same quantity distilled without water yielded, with the heat of a water bath, two ounces only. When turpentine is distilled or boiled with water till it become solid, it appears yellowish; when the process is farther continued, it acquires a reddish-brown colour. The oil of turpentine, called also spirit of turpentine, cannot, without singular difficulty, be dissolved in alcohol, though turpentine itself is easily soluble in that spirit. One part of oil may be dissolved in seven parts of alcohol; but on standing, the oil chiefly separates, and falls to the bottom.

Medical use.—Taken internally, the turpentines are active stimulants, open the bowels, and increase the secretion of the urine, to which they give the smell of violets, even though applied only externally. In all cases of an inflammatory nature they are improper. They are recommended in gleets, fluor albus, and other chronic affections of the mucous membranes. Their dose is from a scruple to a dram and a half, and the best method of exhibiting them is in the form of boluses, or blended with some mucilaginous liquid, beat up with the yolk of an egg, or in the form of electuary made up with honey. They may also be given in the form of a clyster or enema, half an ounce being beat up with the yolk of an egg, or mixed with an ounce of sweet oil or melted butter, and eight ounces or a pint of thin linseed tea or gruel added. The spirit of turpentine used in this form is an excellent stimulating enema, useful in cases of tympanitis or windy colic, ascarides, or small worms in the lower part of the bowels, and it will be found repeatedly ordered in different parts of this work in various diseases.

The oil or spirit of turpentine when given internally, is highly stimulating. It acts as a diuretic and sudorific in small doses. It has also been given in some cases of rheumatism, especially in *sciatica* and *lumbago* in very large doses, but not with very great success, and sometimes it produces strangury and bloody urine.

Lately, however, its use in very large doses has been renewed, and with almost invariable success, in one of the most obstinate diseases to which the human body is liable, the tapeworm. For this valuable discovery we are indebted to Dr Fenwick of Durham; although its use both in worms and epilepsy seems to have been previously known to Dr Latham. It has been given to the extent of four ounces at one dose without any perceptible bad effects, and scarcely any more inconvenience than would follow from an equal quantity of gin. In large doses it does not seem so apt to produce strangury, but only an approach to intoxication; it generally acts as a speedy purgative, and discharges the worm in all cases, *dead*. In epilepsy, this medicine has also produced beneficial effects, though these have not always been lasting. Applied externally as a liniment, it produces excellent effects on indolent swellings, in paralysis of the limbs, and in bruises and nervous pains and spasms. If applied when heated

it acts as a powerful rubefacient, and in this form is exceedingly useful in cases where we wish to produce rapid counter-irritation. It also acts as an excellent styptic, when applied on compresses of lint to the mouths of bleeding vessels. Indeed, at one time, it was vaunted as a substitute for the ligature, but soon fell into disrepute from being over-lauded. When heated slightly, it is sometimes used as a stimulating application to burns.

TUTTY. The powder of the impure oxide of zinc. It is a fine dry powder, of pale red colour, and is used to dust the bodies of infants, so as to prevent excoriations of those parts, where, from the folds of the joints, the surfaces are liable to come in contact and fret each other, as at the groin, hips, armpits, and behind the ears. Sometimes white lead is used for the same purpose, but it is a dangerous substance to be in the nursery, and should therefore be proscribed.

TWIN. One of two young produced at a birth, by an animal that ordinarily produces but one. It is calculated that of eighty human births, one is of twins. Whether twins are begotten contemporaneously or successively is doubtful. Some examinations seem to render the latter more probable. Twins are often as different in body and disposition as other persons. They are often weakly after birth, and require especial care.

TYMPANY, OR DRUM-BELLY. This is a disease in which the belly is swollen by accumulation of flatus or wind, either in the intestines or in the cavity of the peritoneum. Intestinal tympanitis, which is the more common form, frequently arises after attacks of dysentery or diarrhœa, especially when these discharges are stopped suddenly, and it also supervenes in cases where eruptions of the skin have been thrown in, as it is termed, by sudden exposure to cold. Tympanitis is also frequent in cases of dyspepsia, and is also a very troublesome symptom in cases of fever; it likewise arises sometimes in a very violent form, which has been named flatulent colic, from eating crude articles of food, as unripe fruit, raw turnips, cucumbers, salads, the dough of dumplings, &c.

It sometimes comes on rapidly, at others gradually. It is generally preceded by a rumbling noise in the intestines, eructations, and discharge of wind downwards. The belly is hard and tense like a drum, the swelling is general over the whole belly, and it does not change its form on changing the position of the patient, nor does it yield much to pressure; on percussion with the tips of the fingers the sound is hollow, like that of a drum. The appetite is generally bad, the bowels constipated, and there is often heat of skin. In some cases there is retention, in others suppression of urine, and there is almost always a great degree of thirst.

In the latter stages of bad cases, along with the above mentioned symptoms and great debility, the respiration becomes affected from the great distention of the belly; and the patient dies either from exhaustion, or mortification supervening.

Tympany of the peritoneal cavity is commonly caused by some eroded, or ulcerated portion of the intestines, permitting air to pass from them into the serous cavity, and of course must be regarded as incurable.

Infants, during the first months, frequently suffer very much from flatulence in the stomach and bowels, owing to the pernicious and useless custom of giving them spoon food, which their stomachs cannot, and never were intended to digest, and then making matters worse, by pouring in all sorts of nauseous drugs and carminatives, as they are termed, and not unfrequently preparations of opium, under the imposing name of soothing or anodyne syrups. In such cases, all food, except the mother's milk, should be abandoned, or if there is not sufficient of this natural food, a little sweet milk, with an equal quantity of sweet whey and a little sugar, may be substituted, but no farinaceous diet. As to medicines, the fewer the better. The bowels may, if necessary, be opened by means of a little castor oil, or a small dose of calcined magnesia with rhubarb; if carminatives are required, dill water, or sugar of aniseed, or an asafœtida injection, are the best that can be used.

Treatment of Tympany. The treatment of tympanitis consists in using remedies to expel the confined flatus. The means used to produce that effect, depend of course on the exciting cause. In some cases, for example, where the disease arises from irritation of the mucous membrane, and where there is great heat of skin, and thirst, and quick, hard pulse, bleeding is often of great service, both in relieving the symptoms, and in preventing inflammation. It is seldom, however, that tympanitic patients will bear general bleeding; and in such cases, we require to use hot fomentations, or frictions with warm turpentine and oil, and to exhibit what are called carminative medicines, for the purpose of expelling the wind; those most generally useful are, ether combined with laudanum in the proportion of twenty-five drops of the former, to fifteen of the latter, the aromatic spirit of hartshorn, warm brandy and water, or twenty or thirty drops of tincture of asafœtida, if the tympanitis arises from irritation produced by crude or acid food, carbonate of soda in doses of half a dram, combined with aromatic powder, or a few drops of the compound tinctures of cardamoms, or lavender, is a very efficacious remedy. In severe cases of tympany, where there is great and general distention of the abdomen, and indeed, in all forms of this disease, spirit of turpentine exhibited, either by the

mouth or in the form of clyster, is by far the most effectual remedy. We prefer giving it in the form of enema in the first instance, and for this purpose a large table-spoonful beat up with the yolk of an egg, or with double the quantity of sweet oil, or melted butter, and mixed with six or eight ounces of thin linseed tea, is injected by means of the enema syringe, and retained as long as possible, to allow it time to affect the upper part of the intestinal canal. Tincture of asafœtida may also be exhibited in the same form, or a combination of both may be used with advantage. For infants and young children, we prefer the asafœtida, given of course in proportionally smaller doses.

During convalescence, the patient requires to be very careful of his diet, and to avoid exposure.

TYPE. The form, or model of any thing. In medicine this term is used to designate the distinctive circumstances which give the character of similarity in certain diseases. Thus we speak of fevers as being of the typhoid, intermittent, remittent, or continued type, or form.

TYPHOID. This term prefixed to a disease, denotes that it is attended with symptoms of debility, low delirium, and other symptoms of great general prostration, somewhat resembling those met with in typhus fever.

TYPHUS. A species of continued fever, characterized by great debility, a tendency to putrefaction in the fluids, and the ordinary symptoms of fever. It is distinguished from inflammatory fever, by the small, weak, quick pulse, the sudden and great prostration of strength, which occurs on its first attack; and its more advanced stage by the eruption of petechiæ, purple, or livid spots, which appear on the surface of the body. The stools are fœtid; its symptoms are more violent than those of nervous fevers at first, and there is wandering, or low muttering delirium. The most general cause of this disease is contagion, applied either immediately from the body of an affected person, or conveyed in merchandise, clothes, &c. It may also arise from constant exposure to the effluvia of decayed vegetable or animal substances. A want of proper cleanliness, damp, close, and confined air as in prison, on board ship, and in similar situations, where free ventilation is not attended to, may also be enumerated as giving rise to this form of putrid fever. Persons previously in a weak state of health from any previous debilitating cause, such as poor diet, long abstinence, hard labour, or continued want of sleep, and exposure to changes of temperature, are most liable to it. For an account of the method of treatment, see *Fever*.

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ULCERS. A part, in medical and surgical language, is said to be ulcerated, when some portion of it is absorbed, leaving a hollow or vacancy, the surface of which is suppurating. Ulcers may be either external or internal; it is, however, to the former we mean to direct our attention, as internal ulcers of the brain, chest, or abdomen, and their viscera, are generally beyond not only the treatment of a non-professional, but most commonly defy the efforts even of the most experienced and accomplished physician. Ulcers on the external skin not dependent on any poison or virus, are very difficult to describe, and more especially to non-professional readers, on account of the great variety of appearances connected with them. For simplicity, we shall adopt the arrangement of Sir B. Brodie, and treat of ulcers, sometimes called sores, under the heads of healthy, indolent, sloughing, and irritable ulcers.

Healthy Ulcers or sores may be the effect of various causes, such as the application of caustics, or an incision with a knife, or any sharp instrument. Indeed, every wound that does not heal by the first intention or adhesive inflammation, but which suppurates or beals, may be called a healthy ulcer, if no specific poison or virus has been introduced by the instrument that inflicted the injury. Healthy ulcers secrete a thin white pus, of the colour of cream; the granulations around them are small, pointed, and of a florid red colour. For the most part a healthy ulcer will heal of itself; but in general, the better surgical practice is to apply simple dressings to the part, such as simple cerate, very thinly spread on fine rag, or caddis; or what is better, lint dipt in cold, or tepid water, and covered with oiled silk, and then a roller put on, as this will prevent the ulcer scabbing. When the ulcer or sore is of a large size, it may be healed by the application of more stimulant dressings, such as a weak solution of the sulphate of zinc, or the red precipitate ointment well prepared, or half a dram of very finely powdered red precipitate mixed intimately with one ounce of spermaceti ointment. If the granulations grow too fast, or, in Scotch phraseology, proud flesh, rise above the surface, it may be touched with blue-stone,

or a solution of two grains of the nitrate of silver (lunar caustic) in two ounces of water, or sprinkled with finely powdered burnt alum. There is, however, great discretion necessary in the application of these stimulating escharotics, as the ulcers may be over stimulated, or not stimulated sufficiently. When they are of a large size, their cicatrization, or healing may be promoted by the use of alterative medicines internally, and by applying strips of adhesive plaster over them. An ulcer, for example, in the neck caused by a burn will heal; but if care be not taken, the cicatrix will become contracted, and the chin will in consequence be drawn down to the sternum, or breast-bone. This of course causes great inconvenience to the patient, and it often arises from carelessness, in cases of extensive sores or ulcers occasioned by burns. Some imagine that it is very easy to free this bond of union between the chin or neck, and the breast, by cutting the band, if we may so call it, which holds them together; but this may be done, and the cicatrix or band forms again, and even gets more contracted. An operation of this description requires, however, the aid of an expert surgeon. The late Dr Earle recommended to cut out the cicatrix altogether, and bring the divided parts in contact, that the contraction may not produce the same inconvenience as before; but the operation would never be necessary, if due care were taken, in the first instance, to prevent an improper bond of union. There are some appearances in ulcers, that do not go on well, indicating a want of power. In such cases the granulations are large, grow quick, are of a pale colour, and have little vascularity; have an irregular surface, and when they reach the surface of the sore, still continue to grow upward. These appearances are known by the name of ill-conditioned proud flesh in vulgar phraseology. In such cases the patient may have bark or quinine, and sulphuric acid, or elixir of vitriol internally, and the bowels kept open by a five grain mercurial pill every third night, and half an ounce of Epsom salts in ginger tea the following morning. These overgrown granulations or proud flesh may be kept down by the application of the solution of the nitrate of silver, the burnt alum, or finely ground red precipitate sprinkled on the top of them, and dressed with the ointment of the same as directed in a former case, and then slight pressure made by adhesive plaster; or if the ulcers are very irritable, slight pressure may be made with a bandage kept moistened by pure cold water.

Adhesive plaster, as a means of pressure, is an old, yet excellent practice. It should be spread on calico or silk, and cut into strips an inch in breadth; one strip is to be applied some distance below the wound, the next half way over the first, the next half way over the second, and so on until the ulcer is covered; the plaster spread on calico, owing to elasticity, is preferable for this purpose. Care should be taken that the pressure made with the strips of plaster is every where equal, for in these cases much pressure is not required. When there is much discharge, and in warm weather, the adhesive plaster should be changed daily; if, on the contrary, the discharge is trifling, every other day will be sufficient. The black appearance on the plaster is occasioned by the chemical combination of the lead that enters into the composition of the plaster and the discharge, and not from any gangrenous tendency in the sore, as has often been imagined.

The second class is *Indolent Ulcers* or sores; these occur principally on the legs, and are generally a little below the level of the surface of the skin. They have no granulations, and have a discharge not of pus, or well formed matter, but of flakes of coagulated lymph, or sometimes filled with a fluid resembling the liquor that floats about a dead or unhealthy oyster, when the shell is opened. The edges of the surrounding skin are thick, prominent, and smooth. These edges may be touched with lunar caustic, so as to bring them nearly into a level with the sore; a carrot, turnip, or linseed meal, or even a sowens poultice may be applied, and the surface afterwards washed with the black wash. While this is going on, the patient may take ten drops three times a-day of the muriated tincture of iron, half an ounce of Epsom salts, in a gill of ginger or mint tea, being taken every third morning. After the edges have been levelled, and the sore sufficiently cleansed by the poultices, adhesive plaster may be applied, as directed in the other case, a rag covered with red precipitate ointment applied over the ulcer above the plasters, and the whole equally bandaged. We have seen the most extensive indolent ulcers of the legs yield to this plan of treatment, even without enjoining rest, which is necessary in many cases.

The next is the *Sloughing Ulcer* or sore, and these are ulcers that spread, partly by suppuration or bealing, and partly by absorption; they are attended with considerable pain and surrounding inflammation, and the discharge from them is very offensive, and they cause great disturbance to the constitution. The pulse is frequent, the skin is often hot and dry, and the tongue furred. This ulcer is very frequently met with among the poor in cities and great towns, especially in London; and such cases form a great proportion of the hospital and dispensary patients. Sir A. Cooper calls them *gangrenous*, and Sir B. Brodie *sloughing* ulcers. The former of these distinguished surgeons says, that a wound or sore of this description may be known by the surface being perfectly free from dis-

charge, the surrounding edges of a livid appearance, with small vesicles, and blistered spots on them, and the patient suffering much from irritative fever. Seeing this state of the sores, the patient must be enjoined a recumbent posture, which is essentially necessary to promote the suppuration of the parts; but in the treatment of these ulcers, it is necessary to ascertain if there is any cause in the constitution giving rise to them. If they arise from the use of mercury, the patient should be kept in a state of perfect quietude. When there is a great deal of pain, and a mark of limitation of the sloughing, the pain will be relieved by opiates combined with bark or quinine. The following prescription, after the bowels have been opened by a turpentine enema, will be found very serviceable:

Sulphate of quinine, thirty-six grains.
Powder of opium, six grains.
——— cinnamon, twelve grains.
Soft extract of gentian, as much as is sufficient to form a mass, which is to be divided into twelve equal pills, one of which is to be taken every four hours.

When the ulcer is not very painful, and the pulse feeble, this medicine will be found of great service; but when the pain is very severe, a larger dose of opium than half a grain, the proportion in each of these pills, will be required. Again, when there is a great deal of sloughing, and the skin is hot, stimulants will only tend to aggravate the symptoms, and in these cases blood must be taken from the arm, and if it is buffy, purgatives and diaphoretics combined must be administered, as ten grains of Dover's powder combined with two scruples of the compound powder of jalap at bed-time in a small cup of warm gruel. The local treatment may consist of yeast poultices, or simple bread and water poultice, or yellow basilicon spread upon linen rags, and the sore covered with it, or rags moistened with solutions of the chlorides of lime or soda, or a lotion made up, mixing fifty drops of nitric acid in a quart of distilled or pure water; or what is, perhaps, preferable to either, dipping rags or surgeons' lint, two or three times folded, in the compound tincture of benzoin, or Friars' balsam, and keeping the ulcers constantly moist with the application. When once the sloughing has stopped, the ulcer may be frequently washed with the tincture, and covered with adhesive plaster, or rags covered with the red precipitate ointment. Indeed it is difficult to lay down a general plan for the treatment of this kind of ulcer, for according to the external appearance, and contitutional disturbance, so must the medicines be varied. Sometimes the application of nitric acid undiluted is the best application for stopping the progress of the sloughing; but it is not a safe domestic practice, and the tincture of benzoin is to be preferred.

The fourth is *Irritable Ulcer* or sore. 'This sore,' says Sir A. Cooper, 'is extremely difficult to cure,' and may be known by a marked inequality of the granulations, some very high, and others very low. This kind of sore usually commences in the form of an eruption terminating in an ulcer, which is extremely painful, which frequently bleeds, and has jagged edges. The discharge consists of a bloody pus, or pus mixed with the red particles of blood, and if the unequal granulations, already described, are touched, the patient is highly susceptible of pain. All practical surgeons agree in representing this class of ulcers as difficult of cure, and perhaps a better plan cannot be adopted than the administration of the muriated tincture of iron, and in the same doses we have already stated when treating on another species of ulcer, observing to use the Epsom salts every third morning, and an enema of thirty-five drops of laudanum, and twenty of each of the tinctures of henbane and hemlock in an ounce of warm water at bed-time. This enema, if retained, will procure sleep, and abate the irritation. After the sore has been well cleaned with carrot, or turnip, or bread poultices, with opium, it may be dressed with the following ointment.

Spermaceti ointment, one ounce.
Gray oxide of mercury, half a dram.
Finely powdered opium,
Olive oil, each one dram.
Mix intimately, and form an ointment.

This should be applied on rag or caddis night and morning. If the sore looks foul, an occasional poultice of bread, with an equal quantity of powdered hemlock leaves, sometimes proves beneficial. A continuance of the muriated tincture of iron will, however, be of great service. A decoction of burdock root, elm-bark, or the compound decoction of guiacum wood, may be used as common drink in the quantity of a pint daily; and a change may be made, using the burdock one week, the elm-bark another, and the guiacum wood a third. Where the stomach will not suffer such bulky medicines, the sulphate of quinine and powdered ginger may be formed into pills, containing three grains of sulphate of quinine, each made into a mass with any of the soft bitter tonic extracts, such as dandelion root, gentian, or broom.

The difference between sloughing and irritable ulcers is this, the former, viz. the sloughing ulcers, affect the constitution, and cause the disturbance, while the latter, or irritable ulcers, are caused by a cachectic state of the constitution. The preceding are ulcers the most frequently met with in these kingdoms; but there are others sufficiently troublesome, that will be found described under their respective designations, such as the cancerous, scrofulous, Noli me tangere, syphilitic, &c. In the meantime, we recommend to every one who is willing to be useful to his friends or fellow-creatures, especially to travellers and mariners, to embrace

every opportunity of learning the very simple but useful art of dressing an ulcer.

UMBILICAL CORD. The navel string. See *Labour*, and *Circulation, Fœtal.*

UMBILICUS. The navel. For the position and extent of what is termed in anatomy the umbilical region, see the article *Abdomen.*

UPAS TREE. A Javanese tree, celebrated for its poisonous qualities, which, however, have been very much exaggerated. It was long believed in Europe that this tree was a solitary one situated in a valley in Java, the pestilential qualities of which were so great, that neither herb nor animal could live within many miles of its circle, and that criminals alone were sent to gather poison from it, few of whom ever returned. Dr Horsfield (in volume seventh of Batavian Transactions,) was among the first to give a correct account of the poison tree of Java. He says that, though the ordinary accounts of it are fabulons, still there exists a tree in Java, from the sap of which a fatal poison is prepared. This tree is the 'Anchar,' which grows in greatest abundance at the eastern extremity of the island. It belongs to the twenty-first class of Linnæus, or the Monœcia. The male and female flowers are produced on the same branch at no great distance from each other; the females being in general above the males. The seed-vessel is an oblong drupe, covered with the calyx; the seed, an ovate nut with cells. The top of the stem sends off a few stout branches, which spreading nearly horizontally with several irregular curves, divide into smaller branches, and form an hemispherical, not very regular crown. The stem is cylindrical, perpendicular, and rises completely naked to the height of sixty, or seventy, or even eighty feet; near the surface of the ground it spreads obliquely like many of our large forest trees. The bark is whitish, slightly bursting into longitudinal furrows. Near the ground this bark is, in old trees, more than half an inch thick, and when wounded, yields copiously the milky juice from which the poison is prepared. This juice or sap, is yellowish, rather frothy; and when exposed to air its surface becomes brown. In consistence it is much like milk, but thicker and more viscid. The sap is contained in the true bark, or *cortex.* The inner bark (*liber*) is a close, fibrous texture like that of the paper mulberry-tree called *morus papyfera*; and when separated from the other bark and cleansed, resembles coarse linen. It has been worked into strong ropes; and that from young trees is often converted by poor people into a coarse stuff which they wear while working in the fields. If wetted by rain, however, this flimsy covering affects the wearer with an intolerable itching. Although this curious property of the prepared inner bark is known wherever the tree grows, yet the preparation of poison from its sap is a secret exclusively possessed by the inhabitants of the eastern extremity of Java.

In making his numerous experiments on the tree, Dr Horsfield had some difficulty with his native labourers, who feared a cutaneous eruption, but nothing more. This eruption, and other symptoms, are produced by the well-known Chinese varnish tree, whose sap, like that of this poison-tree, is procured by making incisions in the trunk.

The anchar is one of the largest trees in Java; it delights in a fertile, not very elevated, soil, and is found only in the midst of the largest forests. 'It is,' says Dr Horsfield, 'on all sides surrounded by shrubs and plants, and in no instance with barren desert.' The largest specimen he saw was so embosomed in common trees and shrubs that he could hardly approach it; wild vines and other climbing shrubs, in complete health, adhered to it, and ascended half the height of its stem. While he was collecting its sap he observed several young trees that had sprung up spontaneously from seeds dropped by the parent plant.

Dr Horsfield also describes the preparation of the poison, as the process was performed for him by an old Javan, who was famed for his skill in the art. The poison thus made seems to affect quadrupeds with nearly equal force, proportionate in some degree to their size and disposition. It is fatal to dogs in an hour, to mice in ten minutes, to monkeys in seven, to cats in fifteen minutes, while a poor buffalo subjected to the experiment was two hours and ten minutes in dying.

URETER. The excretory duct of the kidney or gland which secretes the urine. When treating of the structure of the kidney, we stated that the tubular part of that gland terminated in a membranous dilatation called the pelvis of the kidney. The pelvis (of the kidney), very wide at first, gradually narrows, and opposite the lower border of the kidney terminates in a long narrow tube, the ureter. The structure of the ureter is the same as that of the pelvis of the kidney, viz., an external fibrous tunic or coat lined by a fine mucous membrane; the calibre of the ureter is about equal to that of a common quill, and its length in the adult varies from sixteen to eighteen inches.

The ureter passes downwards from the kidney, lying at first upon the psoas muscle; it then crosses over the common iliac vessels, and entering the true pelvis passes on towards the lower and back part of the bladder, which it enters near the neck. In this course the ureter lies behind the peritoneum, and the spermatic blood-vessels also cross in front of it. In the male it lies to the outer side of the vas deferens which passes down by the side of the bladder towards the seminal vesicle. On opening into

the bladder, the ureters pass obliquely between its muscular and mucous coats, before they end on its inner surface; this arrangement has a valvular effect, preventing the urine from passing back towards the kidney. In cases where gravel or small stones form in the kidneys, great pain is felt during their passing down through the ureters, until they are discharged into the bladder, where the stone is so large as to become impacted in the passage, the symptoms of what is termed a fit of gravel, become excessive. There is violent pain in the loins, and along the spermatic cord, and down the inner side of the thighs, retraction of the testicle, and a considerable degree of fever, and vomiting, together with violent strangury. The treatment to be followed is to place the patient in a warm bath, and to take blood from the arm to syncope, if he be sufficiently strong to bear it, and to give large doses of the balsam of capivi, and to cause him to drink freely of diluents, so as to hasten the passage of the stones.

URETHRA. A membranous canal or tube, through which the urine collected in the bladder is voided; by one extremity it is continuous with the bladder, whilst by the other it opens externally. In the female it serves merely for the excretion of the urine, in the male it is the outlet also for the seminal fluid.

The urethra in the female is very short, being only about an inch and a half in length, and is but very slightly curved; it lies in the mesial line beneath the symphisis of the pubis, and is imbedded in the upper wall of the vagina. The external orifice opens beneath the symphisis of the pubis about an inch behind the clitoris, and immediately above the inlet to the vagina. Its structure consists of a mucous lining membrane, covered by a layer of cellular tissue; and as these are not connected with any dense, unyielding parts, the female urethra admits of a great degree of dilatation, and hence, when stone occurs in the female, we are generally able to extract the foreign body by dilating the urethra, without cutting, unless the stone be very large. But even after simple dilatation, there is generally a risk of the troublesome symptom of incontinence of urine.

The urethra in the male is a much more complicated structure. It extends from the neck of the bladder, to the extremity of the penis. Its length is generally estimated at from seven to ten inches in the adult; its diameter varies considerably at different points, being about four lines wide throughout the great part of its extent; and from two and a half to three at its orifice. The urethra in the male consists of a mucous lining membrane, and an external cellular layer; but these are surrounded at different points of their course by different structures, and from this circumstance the canal has been divided into three distinct portions, which are named according to the structures that surround them. The first or prostatic portion is that nearest the bladder, where the canal of the urethra passes through the substance of the prostate gland: in the middle of the lower surface or floor of this portion of the canal, there projects a narrow ridge, some lines long, and by its sides the two common seminal ducts open, one at each side. The membranous portion of the urethra is placed beneath the symphisis pubis, between the layers of the triangular ligament, and extends from the prostate gland to the bulb which is the commencement of the spongy portion of the urethra. It is from ten to twelve lines long, and composed only of the proper tunics of the urethra, whence its name. It is the narrowest part of the canal. The spongy portion of the urethra commences at the bulb, or pendulous part of the urethra, and terminates at the *glans penis*. It is from six to seven inches long, and receives its name from being surrounded by spongy vascular tissue; its diameter is intermediate between that of the prostatic and membranous portions; but opposite the pendulous part called the bulb, there exists a dilatation or sinus, into which the catheter may pass when being introduced into the bladder. When the penis is pendulous, the male urethra forms a double curve, somewhat in the manner of the Italic letter *S*, but when introducing instruments the first curve is effaced, so that we have merely to attend to manage the second curve at the membranous part, by depressing the handle of the instrument at the proper time. (See *Catheterism.*) The urethra is subject to several diseases, most of them induced by the effect of the peculiar inflammatory action which takes place from impure connection, and which we have already treated of under the titles of *Clap* and *Gleet*, and we shall now discuss the subject of strictures of this canal so often induced by these diseases.

URETHRA, Stricture of. Stricture of the urethra is said to exist in two forms, the true or permanent stricture, and the spasmodic. To the latter form the term stricture is not very applicable; there is no doubt that in some cases of irritable urethra, where no organic disease of that passage exists, the surrounding muscular tissues may occasionally contract spasmodically, so as to diminish, or obstruct the stream of urine, and prevent the introduction of instruments into the bladder, yet this temporary contraction scarcely constitutes a stricture.

The true or permanent stricture is generally the consequence of previous inflammation, or ulceration of the mucous lining of the urethra, as from gonorrhœa, or long continued gleet; but it may, and not unfrequently does also arise from external injuries, as blows on the perineum, irritation about the bladder and rectum, and is

a frequent concomitant of bad and long-continued attacks of piles.

Permanent organic stricture occurs in various forms and degrees of tightness and firmness; formerly, the obstruction used to be attributed to small warts, 'fleshy caruncles' on the lining membrane of the urethra; but this form is now ascertained to be very rare, and the same may be said of the 'bridle stricture,' which was described as a band of organized lymph traversing the canal of the urethra. The nature of strictures of the urethra will, however, be better understood from a brief description of the manner of their formation.

As we have already stated, stricture, or permanent contraction of the canal of the urethra, may follow ulceration of its mucous membrane; in such cases it is consequent on the contraction of the parts, which takes place during cicatrization of the ulcerated surface; and this process may be readily understood from what we see take place in ulcers of the external parts of the body, as from burns, &c.; but this is not a very usual form of stricture, although, when it does occur, it is evident, that as the diminution of the calibre of the urethra is the result of actual loss of substance, this kind of stricture will prove very troublesome, as it will admit of but little dilatation by the means commonly used for that purpose, and will be very apt to return gradually, even when it has been dilated, unless great care be taken to keep up the dilatation by the introduction of dilating instruments from time to time.

The manner in which permanent strictures more usually form, however, is the following. During inflammation, particularly in the chronic form of inflammation, the vessels of the mucous membrane become dilated, and serum is effused into the submucous cellular tissue, effusion of lymph subsequently takes place, and this becomes organized, and continues to increase in bulk owing to the deposition of new matter. Now if the lymph be effused beneath the mucous lining at only one point in the circumference of the canal, it will cause a projection at that point diminishing its calibre, and give rise to a splitting, or forked stream of urine during micturition, and if there be effusion beneath the lining membrane completely round the canal, then urine will be passed in a small twisted stream, but not forked; and in some cases of bad stricture, we find the contraction so firm and small, that a probe can scarcely be introduced, and the water only passes in drops, and with great straining.

The symptoms of stricture are so gradual in manifesting themselves, that a person may be labouring under a tolerably firm and tight stricture without being aware of it, and perhaps applies to his medical attendant for advice relative to some of the symptoms, which he may suppose arises from other causes. The diminution of the stream of urine is so very gradual, that the patient for sometime does not notice it. The symptoms which most usually arrest attention, are pains in the loins and hips, obstinate gleet, irritability about the anus, or chronic swelling of the testicles, or inguinal gland. In many cases these symptoms re-act on the constitution, the functions of the digestive organs are impaired, the countenance is sallow, and has an anxious and contracted appearance. On questioning a person labouring under these symptoms, he may say that the stream of urine is of the usual size, without intending to deceive; but on examination, it will be found that the stream forks, or is small and twisted, and that there is a frequent desire to empty the bladder, particularly during the night; and in bad cases the urine only comes away at first in drops, a long time is occupied in passing even a small quantity of water, and the patient strains very much. By this straining rupture is often produced, and in bad old-standing cases the patient frequently is obliged to go to the water-closet when he wishes to pass urine, lest the straining necessary to overcome the obstruction caused by the stricture, should cause an evacuation from the bowels. In consequence of straining, the muscular coat of the bladder becomes enormously thickened, and sometimes cysts are formed in the bladder, by the protrusion of parts of the mucous coat.

In cases of stricture, the difficulty of passing urine may suddenly become much greater, or complete retention may take place in consequence of increased irritation of the canal, giving rise to what may be termed a combination of the spasmodic and permanent stricture; in other words, the vascular tissues surrounding the canal become distended with blood, whilst the muscular tissues being irritated, give rise to spasmodic contraction, thus aggravating the original disease. This complication may result from exposure to cold, from excess in wine, from stimulating food, or debauchery of any kind. In some cases of bad and neglected stricture, ulceration of the urethra behind the contracted point frequently takes place; if the canal gives way suddenly, as we sometimes find in retention of urine from stricture, then the urine is extravasated widely amongst the loose cellular tissue, causing extensive gangrene. If active surgical treatment be not instantly adopted to evacuate the acrid fluid and sloughs, by means of free incisions, the consequences are inevitably fatal, and even when the promptest measures are used, the result is always very doubtful. But more commonly ulceration takes place more slowly, and inflammation and condensation of the surrounding cellular tissue has taken place before the ulceration is so complete as to allow of the escape of the urine; in fact, small abscesses form by the side of the urethra, and into these

cavities the urine is extravasated, and its escape is limited by their cysts, thus constituting urinary abscesses and fistula, for fistulous openings almost constantly follow in such cases. See *Urinary Abscess.*

Treatment of Stricture. The method of treatment to be adopted must be of a kind to promote absorption of the effused and organized lymph, which, as we have already shown, usually gives rise to the diminution of the calibre of the canal. At one time, caustic applied to the stricture by means of a bougie, so as to destroy the obstruction, was much in fashion; but though in some cases this might speedily destroy the obstruction at the time, in general it gave rise to great swelling and irritation, and in all the subsequent contraction of the ulcerated surface caused by the application of the caustic, must have been greater than before from the actual loss of substances. The method now generally used is much less dangerous, and at the same time more permanently efficient, being on the same principle as we apply pressure to cause absorption of swelling in other parts.

It consists of mechanical dilatation of the canal by means of metallic instruments, called bougies or sounds; these are of different diameters in graduated sets from No. 1 to 16, and curved to the course of the urethra, being similar in form to the catheter represented in our plate of surgical instruments, which, indeed, is frequently used for this purpose. In beginning the treatment, we begin with a pretty large instrument, and gradually descend in the scale till we find one small enough to pass through the stricture, and this requires to be kept in for some hours, giving the patient an opiate to prevent any irritation being produced by its presence in the canal. The strictured part is thus distended, and the pressure of the instrument causes gradual absorption of the effused lymph, so that the instrument which was passed at first with difficulty, soon begins to feel loose in the canal; after having used the same size three or four times, at intervals of three, four, or eight days, according to the irritation produced by its introduction, a larger size is next used, and so on until a No. 14 or 16 can be easily passed; afterwards the patient, who, by this time, will have become accustomed to use the instrument himself, should occasionally pass a full sized bougie, to prevent contraction recurring. It may be easily understood, that if the stricture has been of long standing, and the effused lymph and surrounding tissues indurated, then the case must be very tedious and difficult to manage; indeed, passing instruments in cases of stricture is perhaps one of the most difficult operations in surgery, for none requires greater tact, dexterity, and skill, than this, and in no disease are patients more liable to be bungled out of their lives, by rude attempts at catheterism; and therefore the best surgical assistance should be sought, and that as early as any suspicion arises of the nature of the complaint. See *Catheterism; Urine, Retention of.*

URINARY ABSCESS AND FISTULA. This disease, as we have stated in the preceding article, is one of the consequences of stricture, but it may also arise in consequence of phlegmonous abscess in cellular tissue of the perineum, causing ulceration of the urethra, when the urine escapes into the cavity of the abscess. Urinary abscess, in consequence of stricture, arises in two ways; one of these is from ulceration of the urethra, and the gradual escape of the urine into the surrounding cellular tissue, giving rise to condensation of the cellular tissue and unhealthy suppuration; but this is perhaps the less frequent manner of formation, for in cases where ulceration of the urethra happens in the first instance, the escape of urine, unless very gradual indeed, is more likely to give rise to diffuse extravasation and gangrene of the cellular tissue, than suppuration limited by condensation of that tissue. What we apprehend to be the more frequent process, is, that the irritation of the parts consequent on stricture, gives rise to inflammation and suppuration in the structures surrounding the urethra in the first instance, and that the abscess here, as in other situations, is limited by a cyst of condensed cellular substance, and then the presence of the pus along the course of the urethra, causes ulcerative absorption at some point of that canal, and the urine escaping by the ulcerated opening into the cavity of the abscess, mixes with the pus, forming a urinary abscess.

Owing to the dense fasciæ or membranes which are placed between the deep and superficial parts of the perineum, the matter of these abscesses takes a long time of reaching the surface; and being resisted at some points by these dense membranes, it burrows beneath them, until it points at a part where there is less resistance. Accordingly we find, that, where these abscesses are left to themselves, or not opened early, that there exists a considerable distance between the cavity of the abscess and the point where the matter has escaped; that in fact the matter burrowed so as to leave a long tortuous fistulous track communicating with the urethra internally, and opening at the skin externally, and from which thin pus mixed with urine is discharged, and this is what we term a urinary fistula, or perineal fistula.

The treatment of urinary abscesses and fistula is so purely surgical, and requires such a degree of anatomical and surgical knowledge, that we cannot attempt to give any further idea of it to the general reader, than merely to state, that it consists in re-establishing the natural course of the urethra, and bringing that canal into a healthy condition by the introduction of

bougies, and then laying open the fistulous tracks, and dressing them, so as to cause them to heal from the bottom by means of the process of granulation.

URINARY CALCULI. In our article on *Stone* in the bladder, we have detailed at considerable length the method of the formation, and the symptoms caused by urinary calculi; but that the exact composition of these bodies may be fully understood, we shall in the present article give the chemical composition of the various kinds of stones found in the bladder, as ascertained by the latest analysis.

'The most common kinds of urinary concretions may be conveniently divided into six species: 1. The uric acid calculus. 2. The bone earth calculus, principally consisting of phosphate of lime. 3. The ammoniaco-magnesian phosphate. 4. The fusible calculus. 5. The mulberry calculus, composed of oxalate of lime. And, lastly, the cystic oxide calculus.' *Marcet.*

1. The uric acid forms a hard inodorous concretion, commonly of an oval form, of a brownish or fawn colour, and smooth surface. These calculi consist of layers arranged concentrically around a central nucleus, the laminæ being distinguished from each other by a slight difference in colour, and sometimes by the interposition of some other substance. This species is readily distinguished by the following characters. It is very sparingly soluble in water and muriatic acid. Digested in pure potassa it quickly disappears, and on adding an acid to the solution, the uric acid is precipitated. It is dissolved with effervescence by nitric acid, and the solution yields the purpurate of ammonia when evaporated. Before the blow-pipe it becomes black, emits a peculiar animal odour, and is gradually consumed, leaving a trace of white ash, which has an alkaline re-action.

2. The bone earth calculus, first correctly analyzed by Dr Wollaston, consists of phosphate of lime. The surface of these calculi is of a pale brown colour, and quite smooth, as if they had been polished; when sawed through the middle, they are found to be laminated in a very regular manner, and the layers in general adhere so slightly that they may be separated with ease into concentric crusts. This calculus, when reduced to powder, dissolves with facility in dilute nitric, or muriatic acid, but is insoluble in potassa. Before the blow-pipe it first assumes a black colour, from the decomposition of a little animal matter, and then becomes quite white, undergoing no further change, unless the heat be very intense, when it is fused.

3. The phosphate of ammonia and magnesia was first described as a constituent of urinary calculi by Dr Wollaston. It rarely exists quite alone, because the same state of the urine which leads to the formation of this species, favours the deposition of phosphate of lime; but it is frequently the prevailing ingredient. It often appears, in the form of minute sparkling crystals, diffused over the surface, or between the interstices of other calculi laminæ.

Calculi in which this salt prevails, are generally white, and less compact than the foregoing species. When reduced to powder they are dissolved by cold acetic acid, and still more easily by the stronger acids, the salt being thrown down unchanged by ammonia. Digested in pure potassa it emits an ammoniacal odour, but it is not dissolved. Before the blow-pipe, a smell of ammonia is given out, it diminishes in size, and melts into a white pearl with rather more facility than phosphate of lime.

4. The fusible calculus, the nature of which was first determined by Dr Wollaston, is a mixture of the two preceding species. It is commonly of a white colour, and its fracture is usually ragged and uneven. It is more friable than any of the other kind of calculus, separates easily into layers, and leaves a white dust on the fingers. These concretions are very common, and sometimes attain a large size. The fusible calculus is characterized by the facility with which it melts into a pearly globule, which is sometimes quite transparent. When reduced to powder, and put into cold acetic acid, the phosphate of ammonia and magnesia is dissolved, and the phosphate of lime, almost the whole of which is left, dissolves readily in muriatic acid.

5. The mulberry calculus, so named from its resemblance to the fruit of the mulberry, was first proved to consist of oxalate of lime by Dr Wollaston. This concretion is sufficiently characterized by its dark coloured tuberculated surface; but it may also be distinguished chemically by the following properties. Heated before the blow-pipe, the oxalic acid is decomposed, and pure lime remains, which gives a strong brown stain to moistened turmeric paper. It is insoluble in the alkalies; but by digestion in carbonate of potassa it is decomposed, and the insoluble carbonate of lime is left. When reduced to powder, and digested in muriatic or nitric acid, a perfect solution is effected. It is not dissolved by acetic acid, a circumstance which distinguishes it from the ammoniaco-magnesian phosphate; and it is distinguished from phosphate of lime by being insoluble in phosphoric acid.

6. The cystic oxide was described by its discoverer, Dr Wollaston, in the Philosophical Transactions for 1810. This concretion is not laminated, but appears as one uniform mass, confusedly crystallized through its whole substance, having somewhat the appearance of the ammoniaco-magnesian phosphate, though more compact. Before the blow-pipe it emits a peculiarly fetid smell, quite distinct from that of

uric acid, and is consumed. It is characterized by the great variety of re-agents, in which it is soluble. It is dissolved abundantly by the muriatic, nitric, sulphuric, and oxalic acids; by potassa, soda, ammonia, and lime water; and even by the neutral carbonates of soda and potassa. It is insoluble in water, alcohol, bicarbonate of ammonia, and in the tartaric, citric, and acetic acids.

From the similarity which this substance bears to certain oxides, in uniting both with acids and alkalies, Dr Wollaston termed it an oxide, and gave it the name cystic, on the supposition of its being peculiar to the bladder. Dr Marcet, however, has found it in the kidney. Cystic oxide calculi are exceedingly rare, and in this country seven specimens only have been found.

Besides the calculi just mentioned, three other species have been noticed. Two of these were described by Dr Marcet; the xanthic oxide, and fibrinous calculus, both of which are exceedingly rare. The third species consists chiefly of carbonate of lime, and is likewise of rare occurrence.

From the solubility of urinary concretions in chemical menstrua, hopes were once entertained that re-agents might be introduced into the urine, through the medium of the blood, or be at once injected into the bladder, so as to dissolve urinary calculi, and thus supersede the necessity of a painful operation, which is not devoid of danger.

It has been found, however, that, for this purpose, it would be necessary to employ acid, or alkaline solutions of greater strength, than may safely be introduced into the bladder, and consequently, all attempts of the kind have been abandoned. The last suggestion of this nature was made by Messrs. Prevost and Dumas, who propose to disunite the elements of calculi by means of galvanism. This agent, however, though it has this effect out of the body, will scarcely, we conceive, be found admissible in practice.

URINARY ORGANS. These consist, 1st. Of the kidneys or glands, which elaborate or secrete the urine from the blood. 2d. The ureters, or excretory ducts of the kidneys, which convey the urine secreted by these glands into the bladder. 3d. The urinary bladder or reservoir, which contains the secreted urine. And, lastly, the urethra or excretory canal of the bladder, by which the urine is discharged from the body.

These organs have already been fully described, separately, in other parts of this work, under the articles *Bladder*, *Kidneys*, *Ureter*, and *Urethra*. The principal diseases of the urinary organs will also be found described under the articles *Kidneys, Inflammation of; Diabetes*, *Strangury*, *Clap*, *Gleet*, *Urethra, Stricture of; Urinary Abscess, Dysuria, Urine, Bloody; Urine, Incontinence of, and Urine, Retention and Suppression of; Prostate Gland*, &c. We have adopted this arrangement, as enabling us to give more detailed accounts of each particular disease, than we could have done had we placed them all under one article.

URINE is an excrementitious fluid, designed for ejecting from the system substances which, by their accumulation within the body, would prove fatal to health and life. It is secreted by the kidneys, whose sole office it appears to be to separate from the blood the superfluous matters that are not required for nutrition, or which have already formed part of the body, and been removed by absorption. The substances, which, in particular pass off by this way, are nitrogen and various saline and earthy compounds. In its natural state, it is transparent, of a yellow colour, a peculiar smell, and saline taste. Its quantity, and, in some measure, its quality, depend on the seasons and the peculiar constitution of the individual, and are likewise modified by disease. It is observed, that perspiration carries off more or less of the fluid which would else have passed off by urine; so that the profusion of the former is attended with the diminution of the latter. The specific gravity of the most concentrated urine is 1·030. It gives a red tint to litmus paper—a circumstance which indicates the presence of a free acid, or of a supersalt. Though at first quite transparent, an insoluble matter is deposited on standing; so that urine voided at night is found to have a light cloud floating in it by the following morning. This substance consists in part of mucus, and partly superurate of ammonia, which is much more soluble in warm than in cold water. Urine is prone to spontaneous decomposition. When kept for two or three days, it acquires a strong smell; and as the putrefaction proceeds, the disagreeable odour increases, until at length it becomes exceedingly offensive. As soon as these changes commence, the urine ceases to have an acid re-action, and the earthy phosphates are deposited. In a short time, a free alkali makes its appearance, and a large quantity of carbonate of ammonia is gradually generated. Similar changes may be produced in recent urine, by continued boiling. In both cases the phenomena are owing to the decomposition of *urea*. This principle is procured by evaporating fresh urine to the consistence of a syrup, and then gradually adding to it pure concentrated nitric acid, till the whole becomes a dark-coloured crystallized mass, which is to be repeatedly washed with ice-cold water, and then dried by pressure between folds of bibulous paper. To the nitrate of urea thus procured, a pretty strong solution of carbonate of potash or soda is added until the acid is neutralized; and the solution is afterwards concentrated by evaporation, and set aside,

in order that the nitre may separate in crystals. The residual liquor, on evaporation and resolution in alcohol, deposits transparent and colourless crystals of urea. It leaves a sensation of coldness on the tongue, like nitre, and its smell is faint and peculiar, but not urinous; specific gravity 1·35; it fuses at 248° Fahr., and at a rather higher temperature, is resolved into carbonate of ammonia and cyanic acid: water dissolves, at 60°, more than its own weight of urea, and boiling water takes up an unlimited quantity. The numerous researches made concerning urine have given the following as its component parts: 1, water; 2, urea; 3, phosphoric acid; 4, 5, 6, 7, phosphates of lime, magnesia, soda, and ammonia; 8, 9, 10, 11, lithic, rosacic, benzoic, and carbonic acid; 12, carbonate of lime; 13, 14, muriates of soda and ammonia; 15, gelatin; 16, albumen; 17, resin; 18, sulphur. According to Berzelius, healthy urine is composed of water 933, urea, 30·10, sulphate of potash, 3·71, sulphate of soda, 3·16, phosphate of soda 2·94, muriate of soda, 4·45, phosphate of ammonia, 1·65, muriate of ammonia, 1·50, free acetic acid, with lactate of ammonia, animal matter soluble in alcohol, and urea, 17·14, earthy phosphates with a trace of fluate of lime 1·0, uric acid 1, mucus 0·32, silex 0·3, in 1000·0. The *uric acid* is a constant ingredient in urine: when pure, it has the following properties; it is sometimes in the state of a white impalpable powder, sometimes in small four-sided prisms, having considerable lustre. It is very tasteless, very white, light, and insoluble both in water and alcohol. In concentrated sulphuric acid, it speedily assumes the form of a jelly, and with the aid of a little heat, a complete solution is obtained. In nitric acid, even though dilute, it dissolves with effervescence; and when the solution is evaporated to dryness, it assumes a fine pink colour, which becomes much deeper when water is added, so as to have a near resemblance to carmine. In this state it stains wood, the skin, &c., of a beautiful red colour. The watery solution of this matter loses its red colour in a few hours and it cannot afterwards be restored. Uric acid combines with the different bases, and forms a genus of salts called *urates*. The only ones of importance are the urates of ammonia, potash, and soda. Urate of ammonia is soluble, to a considerable extent, in boiling, but more sparingly in cold water. The urates of soda and potash, if neutral, are of very feeble solubility; but an excess of either alkali takes up a large quantity of the acid. When uric acid is heated in a retort, carbonate and hydrocyanate of ammonia are generated, and a volatile acid sublimes, called *pyro-uric acid*, which is believed to be identical with cyanate acid.

Such is a general view of the composition of human urine in its healthy state. But this fluid is subject to a great variety of morbid conditions, which arise from the deficiency or excess of certain principles which it ought to contain, or from the presence of others wholly foreign to its composition. Of those substances which, though naturally wanting, are sometimes contained in the urine, the most remarkable is sugar, which is secreted by the kidneys, in diabetes. Diabetic urine has a sweet taste, and yields a syrup by evaporation, is almost always of a pale straw colour, and in general, has a greater specific gravity than ordinary urine. The sugar, when properly purified, appears identical, both in properties and composition, with vegetable sugar, approaching nearer to the sugar of grapes than that of the sugar cane. The acidifying process which is constantly going forward in the kidneys, as evinced by the formation of sulphuric, phosphoric and uric acids, sometimes proceeds to a morbid extent, in consequence of which, two acids, the oxalic and nitric, are generated; neither of which exists in healthy urine. The former, by uniting with lime, gives rise to one of the worst kinds of urinary concretions; and the latter appears to lead to the formation of purpurate of ammonia, by re-acting on uric acid. In severe cases of jaundice, the bile passes from the blood into the kidneys, and communicates a yellow colour to the urine. Though albumen is contained in a very minute quantity in healthy urine, in some diseases it is present in large proportion. It is characteristic of certain kinds of dropsy. In certain states of the system, urea is generated in an unusually small proportion. This occurs especially in diabetes mellitus, and in acute and chronic inflammations of the liver. An abundant secretion of uric acid is by no means uncommon. In some instances, this acid makes its appearance in a free state; but happily it generally occurs in combination with an alkali, especially with soda or ammonia. The undue secretion of these salts, if temporary, occasions scarcely any inconvenience, and arises from such slight causes, that it frequently takes place without being noticed. This affection is generally produced by errors in diet, whether as to quantity or quality, and by all causes which interrupt the digestive process in any of its stages, or render it imperfect. Doctor Prout specifies unfermented, heavy bread, and hard-boiled puddings or dumplings, as, in particular, disposing to the formation of urates. These sediments have commonly a yellowish tint, which is communicated by the colouring matter of the urine; or, when they are deposited in fevers, forming the lateritious sediment, they are red, in consequence of the colouring matter of the urine being then more abundant. As long as uric acid remains in combination with a base, it never yields a crystalline deposit; but when this acid is in excess and in a free state, its very sparing solubility causes it to separate in minute

crystals, even within the bladder, giving rise to two of the most distressing complaints to which mankind are subject—to *gravel* when the crystals are detached from one another, and, when agglutinated by animal matter into concrete masses, to the *stone*. These diseases may arise either from uric acid being directly secreted by the kidneys, or from the formation of some other acid, by which the urate of ammonia is decomposed. The tendency of urine to contain free acid occurs most frequently in dyspeptic persons of a gouty habit, and is familiarly known by the name of the uric or lithic acid diathesis. In these individuals, the disposition to undue acidity of the urine is superadded to that state of the system which leads to an unusual supply of the urates. A deficiency of this acid in urine, however, is no less injurious than its excess. As phosphate of lime in its neutral state, is insoluble in water, this salt cannot be dissolved in urine except by being in the form of a superphosphate. Hence it happens that healthy urine yields a precipitate, when it is neutralized by an alkali; and if, by the indiscriminate employment of alkaline medicines, or from any other cause, the urine, while yet in the bladder, is rendered neutral, the earthy phosphates are necessarily deposited, and an opportunity afforded for the formation of a stone.

URINE, Bloody. This is rather a symptom than a disease, for it occurs in many diseases of the urinary organs, and from various causes. It is sometimes caused by falls, blows on the loins, or over the lower part of the belly, injuries of the perineum, or violent exertion of any kind, and very frequently as a consequence of debauchery, whilst the person is labouring under clap. But, perhaps, the most frequent cause of its occurrence is the presence of rough calculous concretions in the kidneys, or bladder, giving rise to laceration of the fine mucous membrane, which is highly vascular, and often bleeds profusely, in cases of stone in the bladder; however, the bleeding seldom amounts to above a few drops passed along with the last drops of the urine; but where there is a small rough concretion in the kidneys or ureter, the case is different. All the urine, in such cases, is tinged, and often so deeply coloured, from the admixture of blood, as to appear to consist entirely of that fluid; and when the urine cools, it deposits a dark sediment like coffee grounds. In cases of irritable bladder or strangury, the urine is likewise frequently tinged with blood mixed with mucus.

A discharge of blood, with urine, when proceeding from the kidney or ureter, is commonly attended with an acute pain in the back, and considerable difficulty in passing water, the urine which comes away first being muddy and high coloured, but towards the close of its flowing becoming transparent, and of more natural appearance. When the blood comes immediately from the bladder, it is usually accompanied with a sense of heat and pain, at the bottom of the belly.

The occurrence of bloody urine is always a symptom of some danger, but especially, if it be mixed with streaks of pus. When it arises during any malignant disease, such as typhus fever, or purpura, it shows a highly putrid state of the blood, and may be always regarded as a very unfavourable symptom.

Treatment. When the disease arises from mechanical injury in a plethoric habit, it may be proper to take blood, and pursue the general antiphlogistic plan, opening the bowels occasionally, with castor oil, or Epsom salts, in small doses, combined diluted sulphuric acid, and the infusion of roses. When it appears to depend on calculi, or other sources of irritation in the kidney and ureters, which we have no means of removing, we must endeavour to palliate the severity of the symptoms by means of demulcent drinks in large quantities, combined with acids or alkalies, according to the state of the urine, by keeping the bowels gently open; and by opiates, and the warm bath. In some cases, as in inflammation of the kidney, or where that is threatened, free depletion is required in the first instance; and where the patient is plethoric, or even tolerably robust, this last mentioned remedy is generally very useful, both in allaying pain and warding off inflammation, and also in hastening the passage of the foreign body (if that cause exist) towards the bladder.

In the more chronic forms of hœmaturia, arising from irritation or catarrh of the bladder, the uva ursi, pariera brava, and capivi, are often found of considerable service.

URINE, Incontinence of. Incontinence of urine means inability to retain the urine, that it flows out of the bladder, without the patient having the power to prevent it. This state may arise from several causes; but perhaps the most usual are, 1. Stricture; 2. Disease of the prostate gland; 3. Paralysis or palsy of the bladder, or rather of the muscles surrounding its neck; and from this last cause we frequently find incontinence of urine take place in the aged, and during coma induced by disease or severe injuries. It may seem strange, that incontinence of urine should arise from causes, which, at first sight, would appear of a nature to give risk to retention; but the truth is, that incontinence or dribbling away of the urine, only takes place when the bladder is quite full; take for example, the case of paralysis of the bladder, there the contractility of the organ is lost, it cannot expel the fluid as usual, it is insensible to the natural stimulus; but the mechanical distention after a time opens, as it were, the canal of the urethra and muscles surrounding the neck of the bladder, being also paralyzed; the

excess of urine continues to dribble off. That such a state of matters actually exists is easily proved, for if we pass the catheter in such a case, we usually draw off a large quantity of water, notwithstanding the constant dribbling which has been previously going on. The same holds good with regard to strictures, and disease of the prostate gland; for we must recollect, that though the muscular coat of the bladder is increased in power in these cases, yet the cavity of the organ is so contracted as to contain but a comparatively small quantity of urine, whilst at the same time its irritability is much increased.

Incontinence of urine also arises in females during the latter stages of pregnancy, in consequence of the pressure of the child's head; from disease of the womb; and it also arises from the presence of stone in the bladder.

With regard to the treatment, where it arises from stricture, the removal of the cause is the course indicated, and that we have already very fully discussed. (See *Urethra, Stricture of.*) When it arises from paralysis, the bladder should be emptied by means of the catheter, blisters applied over the sacrum, cold water dashed on the genitals twice or thrice a-day, and tincture of cantharides given internally in small doses, beginning with four or five drops twice or thrice a-day, in a glass of barley water; tonics may also be given with advantage. If, however, the paralysis be consequent on injury, such as falls on the head, &c. the treatment directed in our articles on concussion and compression of the brain, should be adopted. In disease of the prostate gland, little can be done, except palliating the irritable state of the bladder by means of opiate enemata or suppositories, keeping the bowels gently open by means of mild laxatives, giving bland mucilaginous drinks, and occasionally drawing off the urine; for where the prostate is much enlarged, the bladder is never completely emptied, and a portion of acrid ammoniacal urine is always lodged at the inferior part of the bladder behind the enlarged gland. Where incontinence takes place during pregnancy, nothing can be done further than attention to cleanliness, and using sponge to receive the urine. The disease in general disappears after delivery. In cases of stone, the extraction of the foreign body is evidently the method of cure indicated.

URINE, Retention of. By retention of urine, we mean that state where the urine, although secreted as usual by the kidneys, is not discharged from the bladder, and accumulates, distending that organ. There is another condition of the urinary organs, in which, either from functional or organic disease, the kidneys do not secrete the urine, and then of course, the discharge of that fluid from the body is also wanting. This disease is called suppression of urine, and must on no account be confounded with retention, as the treatment in the two cases is very different indeed. The symptoms in cases of retention, vary according to the state of the bladder, and the causes which have induced the disease.

The bladder is very variable, both as regards size and distensibility. In some cases, it yields readily before the accumulating fluid, and becomes enormously distended, rising high above the pubis, sometimes reaching nearly to the navel, and becoming distinctly visible; whilst in other cases all the symptoms of retention may occur in an urgent form, in consequence of the accumulation of a very few ounces of urine, and without any apparent swelling.

There is a peculiar sickening and agonizing pain, accompanied with violent straining, and ineffectual efforts to empty the bladder. If the distention is allowed to continue, febrile symptoms supervene, the pulse becomes quick, the patient after a time begins to perspire freely, and the perspiration has a strong urinous smell; delirium comes on, along with low fluttering pulse, and other typhoid symptoms, and coma terminates the sufferings of the patient.

If the bladder is not relieved, the secretion of urine after a time becomes suppressed, and the urea entering into the general circulation seems to give rise to the peculiar symptoms we have just detailed, and to which the name of urinous fever has been given.

In many cases of retention, particularly if arising from stricture, the bladder, but more frequently the urethra, ulcerates, if the fluid be not drawn off, and diffuse extravasation takes place, either into the cavity of the belly, or into the deep cellular tissue of the pelvis, round the neck of the bladder, or into the perineum. If the urine escapes into the abdomen from sloughing of the coats of the bladder, the case is indeed hopeless; the patient dies, and that speedily; and if the cellular tissue of the pelvis is infiltrated, the case is very nearly as bad, though the fatal issue may not be so rapid in this, as well as infiltration into the perineum, in which last case the scrotum, penis, and lower part of abdomen become infiltrated, and black, and gangrenous. The only chance for the patient is active surgical treatment, free and deep incisions being made in the perineum, to allow the extravasated urine and gangrenous cellular tissue to be evacuated, supporting the patient's strength at the same time by means of cordials and other stimuli. We need scarcely say, that professional assistance is indispensable, for no ordinary degree of skill is required to treat such cases.

Retention of urine may take place, 1. From paralysis of the bladder, arising from over-distention of the organ, as in cases where the desire to make water has been resisted from

motives of false delicacy, &c., or from disease or injury of the brain or spinal marrow; and paralysis of the bladder is also of frequent occurrence during fever and dysentery, and in old feeble persons. 2. Retention may arise from spasm of the muscular tissues at the neck of the bladder, and around the urethra, accompanied with engorgement of the submucous tissue, in consequence of irritation produced by cold or debauchery, particularly when the urethra has been previously inflamed, as in cases of gonorrhœa. 3. From permanent or true stricture; and it should be kept in mind, that this may be complicated with the state of spasm or engorgement, as we mentioned when speaking of strictures. 4. From enlargement of the prostate gland. 5. From abscess of the prostate, or abscess in the perineum. 6. From injuries of the perineum. 7. From the lodgement of small calculi, or other foreign bodies in the urethra.

In retention arising from paralysis of the bladder, that organ becomes enormously distended, and after a time the local pain is less than in other cases, but the affection is not on that account the less dangerous. In old men we sometimes find the bladder enormously distended, causing a swelling of the abdomen nearly up to the umbilicus, whilst the patient is using sweet nitre, diluent drinks, or gin and water, as remedies, thereby increasing the disease, by encouraging the secretion from the kidneys, whilst there is scarcely a drop of urine passed by the urethra.

The treatment in such cases is very simple. It is to introduce a full sized catheter, and draw off the urine; and this requires to be repeated twice or thrice a-day, or oftener, if the secretion of urine be very rapid, until the coats of the bladder regain their tone, using at the same time blisters to the sacrum, and the other remedies recommended, when treating of paralysis as a cause of incontinence of urine.

Where retention occurs from the second of the causes mentioned, we must recollect that the urethra is in a very irritable and engorged state; and in this case the symptoms are excessively severe. But in such cases, we must not attempt to pass the catheter at once, for if we do so we shall very likely be foiled, and give rise to bleeding from the urethra, and further irritation, without accomplishing the end in view; and also we run a great risk, during the engorged state of the mucous lining, of making false passages by tearing the tender swollen membrane. The treatment, in this class of cases, is as follows. The patient, if at all able to bear depletion, should be placed in a warm bath, and bled until faintness is induced; and then doses of the nauseating solution of tartrate of antimony given to depress the circulation, and leeches to the verge of the anus, are also frequently of great service; and cold applications to the perineum, combined with opiate enemata or suppositories, are very useful in allaying the local engorgement and irritation. The muriated tincture of iron, in doses of ten or fifteen drops in a little water every ten minutes, is often a better remedy than the antimonial solution, as it seems to possess a peculiar action in cases of spasm at the neck of the bladder. If these remedies fail in relieving the retention soon, the patient should again be placed in the warm bath till faintness is produced, and then a moderate sized silver catheter with a rounded point, previously well oiled and warmed, should be carefully passed into the bladder, and its introduction will often be facilitated, by giving an opiate enema a short time before it is tried; but it must be recollected, that the introduction of the catheter in such cases is both very painful and difficult, and therefore no unprofessional person is warranted in attempting it, except where medical assistance cannot be obtained. (With regard to the method of using the catheter in this and other cases, see the article *Catheterism.*) When the bladder has been emptied, we must try to obviate a return of the retention, by using the means we have already mentioned, as the best for relieving the engorged and irritable state of the parts at the neck of the bladder; and the patient should be placed on spare diet, and have mucilaginous and diluent fluids for drink.

3d. Retention from organic stricture of the urethra is one of the most formidable diseases in surgery, requiring all the skill, caution, and dexterity of an experienced surgeon. In such cases, no time is to be lost in introducing the catheter, and relieving the bladder. It is not warrantable to waste time here by trying other means; the obstruction is mechanical, and must be treated accordingly. It is true indeed, as we have several times stated, stricture may be complicated with the swollen and irritable state of the mucous membrane of the urethra, described under the second head of causes of retention; and then bleeding and the warm bath should be used, previous to attempting to introduce the catheter. But as a general rule, we again say, no time is to be lost in drawing off the urine. The operation is always difficult, in many cases perhaps the most difficult one in surgery, and therefore, never to be attempted by the domestic practitioner, except in cases of absolute necessity, arising from the impossibility of obtaining surgical assistance. Even in the best hands, the stricture may be of such a nature, as to render futile all attempts of passing the smallest catheter, owing to induration of the surrounding parts completely obliterating the passage, and rendering it impermeable. In such cases, the surgical operation of puncturing the bladder is absolutely necessary; but to do this

requires an accurate knowledge of the anatomy of the parts. When a catheter has been passed through the stricture, and the retention relieved, the instrument is to be left in the canal, and an opiate enema or suppository administered, to allay or prevent irritation; the catheter should be kept in for several hours, or even for a day, if the patient can possibly bear it, and then the cure conducted on the principles laid down, when treating of urethral stricture.

4th. Retention from enlarged prostate gland. When the prostate becomes enlarged, as it frequently does in old men, it causes a prominent swelling at the neck of the bladder, either compressing the sides of the urethra together, if the swelling is enlargement of the whole gland, or if it be enlargement merely of the middle lobe, it then causes a sort of valvular projection, which frequently obstructs the flow of urine; and in both kinds of enlargement, the lower part of the bladder, behind the gland, is deepened, so that the bladder is never properly or completely emptied, a quantity of urine always lodging in this part of its cavity; and hence, when cold or any other source of irritation causes further swelling of the parts, accumulation gradually takes place, the swollen gland obstructs the passage, and the bladder becomes distended. In such cases, little or rather nothing can be done to cure the disease, although in the first stage it may be alleviated by leeching round the anus, giving demulcent drinks combined with alkalies or acids, according to the state of the urine, and regulating the diet and regimen, so as to obviate irritation of the parts. Iodine has also been given, as being useful in other glandular swellings, but it seems to have no effect on this disease. When retention occurs in such cases, we require to draw off the water with the catheter; and as the enlargement of the prostate gland alters the position of the urethra and bladder, we require to use a pretty large catheter, about two inches longer than the common catheter, and of a considerably greater curve. In some cases, a gum elastic catheter may be used; and its introduction, after a few lessons, left to the patient himself, or some of his friends, cautioning them against using any force whatever in introducing it.

5th. Retention from abscess of the prostate gland, or abscess in the perineum. In retention from either of these causes, when the abscess is phlegmonous or acute, then the use of the catheter should, if possible, be dispensed with, and the same means used to allay irritation and swelling of the parts, which we recommended in cases of spasmodic stricture and inflamed urethra. As the introduction of the catheter here, would likely aggravate the symptoms, in cases of abscess in perinea, an incision should be made early to evacuate the matter; when this is done, or when as is usually the case in abscess of the prostate, the matter is discharged into the urethra, the symptom of retention is relieved; but in some cases, the symptoms are so urgent as to demand the use of the catheter. In cases of cold or chronic abscess, the catheter should be used at once, as it does no harm in such cases.

6th. In cases of injury of the perineum, the catheter should be passed at once, before the patient attempts to pass water; otherwise, the urine may be extravasated through the laceration, and diffuse infiltration take place, with all its baneful effects. The catheter when introduced should, if possible, be kept in; and for this purpose the gum-elastic catheter is preferable, an opiate enema is to be administered, and other treatment indicated by the symptoms of each particular case had recourse to.

7th. In cases where retention occurs from obstruction of the urethra by small foreign bodies, such as calculi lodging in it, we are at first to give large quantities of diluent drinks, and then dash cold water on the lower part of the belly, so as to make the bladder act forcibly, and so, if possible, overcome the obstruction, and force out the foreign body. Where this does not succeed, if we feel the foreign body in the canal, we may attempt to push it forwards towards the orifice, or extract it with small forceps. If it be situated far back, an attempt may be made to push it back into the bladder by means of the catheter; but where it is firmly impacted, a surgical operation for its immediate removal is absolutely necessary. See *Catheterism*, *Urethra*, &c.

URINE, Suppression of. By suppression of urine, we mean, that the secretion of that fluid by the kidneys does not go on as usual. Owing to the fact that no urine is passed, this disease has sometimes been confounded with retention of urine; but the difference can be readily ascertained, by examining the state of the bladder from the bowels, by introducing the forefinger up the rectum, so as to feel whether the bladder is distended or not; and the other symptoms are also different, for although, in both cases urinary fever and low delirium generally occur, the local symptoms of pain and tension in the bladder, and straining to make water, are seldom present in suppression, whilst the constitutional symptoms are more rapidly developed in that disease. Suppression of urine occurs, either in consequence of organic disease of the kidney with alteration of its structure, or from obstruction in the ureters; and also occurs frequently from functional disease of that organ, generally dependent on affections of the brain and nervous system, as in cases of fever, dysentery, and cholera. In the last mentioned disease, this symptom is so constant, as to be reckoned one of the diagnostic marks.

The treatment indicated in suppression of

urine is, to re-establish the secretion, and this may be done in various ways. If there is much pain and weight in the loins, local, and even general depletion, and the use of the warm bath, are, perhaps, the best means to use, not neglecting, however, the use of diuretics, such as sweet spirit of nitre in barley water, or the muriated tincture of iron, squills, infusion of broom, and the various diuretics. If these do not act soon, it is well to introduce the catheter, to make sure that there is no urine in the bladder; and this will also have a beneficial effect, by stimulating the urinary organs. If dependent on disease of the brain, or nervous system, or any other disorder, as fever, &c. the treatment must of course be first directed to remove or alleviate the primary disease, before we can expect to remove this particular symptom.

UTERUS. The organ in which the embryo is received from the ovary, to which it becomes adherent, so as to receive the materials of its growth, and in which it is retained for a longer or shorter time in various species until its expulsion in the process of parturition. A proper uterus belongs only to the mammalia; oviparous generation under various modifications is found in the other classes; and the female organ is therefore reduced to a mere canal (oviduct) for the transmission of the ova. In the human female, the uterus is a spongy receptacle, resembling a compressed pear, situated in the cavity of the pelvis, above the vagina, and between the urinary bladder and rectum. Its form resembles that of an oblong pear flattened, with the depressed sides placed towards the ossa pubis and sacrum; but in the impregnated state, it becomes more oval, according to the degree of its distention. For the convenience of description, and for some practical purposes, the uterus is distinguished into three parts—the upper part, called the *fundus;* the lower, the *cervix;* the space between them, the *body.* The uterus is about three inches in length, about two in breadth at the fundus, and one at the cervix. Its thickness is different at the fundus and cervix, being at the former usually rather less than half an inch, and at the latter somewhat more; and this thickness is preserved throughout pregnancy, chiefly by the enlargement of the veins and lymphatics, there being a smaller change in the size of the arteries. But there is so great a variety in size and dimensions of the uterus in different women, independent of the states of virginity, marriage, or pregnancy, as to prevent any very accurate mensuration. The internal surface of the uterus is corrugated in a beautiful manner, but the rugæ, or wrinkles, which are longitudinal, lessen as they advance into the uterus, the fundus of which is smooth. In the intervals between the rugæ are small orifices, like those in the vagina, which discharge a mucus, serving, besides other purposes, that of closing the os uteri very curiously and perfectly during pregnancy. The substance of the uterus, which is very firm, is composed of arteries, veins, lymphatics, nerves, and muscular fibres, curiously interwoven and connected together by cellular membrane. The use of the womb is for menstruation, conception, nutrition of the fœtus, and parturition. It is liable to many diseases, the principal of which are retroversion and falling down, hydatids, dropsy of the uterus, moles, polypi, ulceration, cancer, &c.

UVA-URSI, OR WHORTLE-BERRY. This is a small evergreen shrub. The leaves are oval, not toothed; and their under surface is smooth, and pale green.

It grows wild in the woods, and on sand hills in Scotland, and in almost every country in Europe. It is also common in many parts of America. The green leaves alone should be picked from the twigs, and dried by exposure to moderate heat. The powder, when properly prepared, is of a light brown colour, with a shade of greenish yellow, has nearly the smell of good grass hay, when recently cut from the root; and is bitter and astringent to the taste.

The medical effects of this plant depend entirely on its astringent and tonic properties. It is therefore useful in the various fluxes arising from debility, menorrhægia, fluor albus, or whites, mucous discharge from the bladder, diarrhœa, dysentery, &c. It has been strongly recommended in phthisical complaints by Dr Bowrie; and in diseases of the urinary organs by Dr Haen, particularly in ulcerations of the kidneys and bladder; and Dr Beaton strongly recommends its use in these complaints, and in gleets.

It is usually given in the form of powder, or electuary, in doses of from twenty to sixty grains three or four times a-day.

UVULA. Is a conical prolongation of the soft palate, enclosing some glands, cellular tissue, and muscular fibres. The uvula is seen hanging down at the back part of the mouth; and in common language is called the 'pap of the throat.' During the act of swallowing, the soft palate and uvula are raised, so as to touch the back part of the pharynx, and thus they are of use in preventing the regurgitation of the food through the nostrils. The uvula is very subject to inflammation; and from repeated attacks it frequently becomes elongated and relaxed, so as to irritate the upper part of the windpipe, and thus give rise to harrassing cough. It is also liable to ulceration; and in bad cases of syphilis and scrofulous ulcerations it is not unfrequently destroyed altogether. In cases of relaxation of the uvula, astringent gargles, such as the oak-bark, or alum, or diluted sulphuric acid gargle are the best local remedies; but where chronic swelling and elongation have taken

place, it requires to be shortened by a surgical operation; the elongated uvula is laid hold of with a sharp hook or vulsellum, and snipt off with a pair of scissors.

In cases of syphilitic or scrofulous ulcerations the best local applications are, touching the ulcers with pure nitric acid, or nitrate of silver, and using gargles of nitro-muriatic acid, or of the chloride of lime, much diluted. Of course these local measures require to be combined with the constitutional treatment, directed in scrofulous and venereal complaints.

V

VACCINATION. Inoculation with the cow-pox. This is a poison, derived from a certain specific sore on the teats and udders of cows, and capable of being communicated by accidental contact, where the cuticle has been removed, or by means of inoculation, to the human subject. That subjects who have taken the vaccine disease accidentally, were thereby secured from the small-pox, was popularly known in several of the dairy counties of England. But it was reserved for Jenner to show, that the cow-pox could be propagated by inoculation, and that the inoculated disease possessed the same prophylactic power as the original disorder. Several years before Jenner wrote on the subject, some eminent physicians had heard of the fact, and mentioned it casually in their writings; but Dr Jenner was the first who composed a treatise, with the express view of bringing the remedy into general application. This was in 1798; and the treatise was entitled an inquiry into the Causes and Effects of the Variola Vaccina, a Disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cow-pox. The value of the discovery was at first a subject of warm controversy; but its great importance is now generally acknowledged. The cow-pox is not a merely local affection, but produces a general, though extremely mild, disturbance of the constitution, which is ordinarly so trivial as not to excite any alarm in the very youngest subjects. It seems probable, at present, that it is not an infallible security against the small-pox, although the number of failures is very small, when due allowance has been made for mistakes and misrepresentations. A small inflamed spot, distinguishable about the third day, shows that the inoculation has succeeded. This increases in size, becomes hard, and rises above the level of the skin. A small quantity of fluid can be discerned in the centre on the sixth day, and the pustule increases until the tenth day. This fluid will communicate the disease by inoculation. On the eighth day, when the pustule is fully formed, the constitutional effects begin to appear, and manifest themselves by slight pain in the part, headache, shivering, loss of appetite, &c. These subside spontaneously in one or two days. During the general indisposition, the pustule becomes surrounded with a broad, circular, inflamed margin, called the *areola*. Afterwards the fluid dries up, and a dark-brown scab forms, which remains for about a fortnight, and, on disappearing, leaves a depression. The spot continues distinguishable through life, either by the circumstance of the depression, or of its colour being somewhat lighter than that of the neighbouring parts.

Small pox after vaccination. In by far the greater proportion of instances where this disease takes place after vaccination, it is modified either in the beginning or subsequent progress of the pustules. In the majority of cases, the appearance of the eruption is completely altered, and the character of the fever is extremely mild. The fever during the commencement of the disease, is frequently severe, but in almost all cases, disappears entirely when the eruption makes its appearance. We often find the pustules hard or horny, but they always show the diagnostic mark of variolous eruption, depressed centres. They run through their stages quickly, generally maturating on the fifth day.

In those cases where it has terminated fatally, the result is more to be attributed to some accidental circumstance, such as its concurrence with disease of the lungs, or inflammation of the bowels, or scrofula, than to the acknowledged effects of small-pox. It may take place at any period subsequent to vaccination. Persons who had formerly exposed themselves with impunity to the influence of the variolous contagion, have taken the disease. It may be communicated by inoculation, but, for the most part, it is received in the natural way.

Inoculation with small-pox virus was at one time in very general use, as a preventive against small-pox; but since the discovery of the cow-pock, it has been seldom had recourse to. Inoculation by small-pox matter is by no means a surer preventive than vaccination, whilst it is highly dangerous to society; for although by precautionary measures, we may

obtain the disease in a mild form in the person inoculated, yet the disease may thus be propagated through the neighbourhood in a very violent form. In some parts of England, small-pox inoculation, however, was occasionally used, and not unfrequently attended with serious evils to the community, until the year 1840, when an Act of Parliament was passed, for the purpose of extending and encouraging vaccination, and forbidding inoculation with variolous matter. The clause of the Act referring to this point is as follows:—

'And be it further enacted, that any person who shall, from and after the passing of this act, produce, or attempt to produce, in any person, by inoculation with variolous matter, or by wilful exposure to variolous matter, or to any matter, article, or thing, impregnated with variolous matter, or wilfully by any other means whatsoever, produce the disease of small-pox in any person in England, Wales, or Ireland, shall be proceeded against and convicted summarily before any two or more justices of the peace, in petty sessions assembled, and for every such offence, shall, upon conviction, be imprisoned in the common jail or house of correction, for any term not exceeding one month.' Anno Tertio et Quarto, Victoriæ Reginæ, cap. xxix. An act to extend the Practice of Vaccination, July 23d, 1840.

VAGINA. The passage from the vulva, or external parts of generation in the female, to the womb. The vagina is subject to several diseases. See *Labour, Womb.*

VALERIAN, or *Valeriana Officinalis.* The root of valerian has long held a distinguished place in the materia medica, and if anything occurred to tarnish its fair fame, or lessen it in the opinion of the faculty, we believe, on inquiry, it will be found entirely owing to ignorance as to the real plant, or to other causes easily remedied. It is the wild or wood valerian, or the *Valeriana sylvestris* that is ordered by colleges; but Dr Epps has shown, and we are certain of the fact, that a greater part of the root sold by druggists is the root of the water valerian, the weakest of the three varieties indigenous in Britain and Ireland.

Heath Valerian.	*Water Valerian.*
Height 2 feet to 2½	Four feet.
Stalk, dusky green.	Stalk, pale green.
— lightly hoary.	— not so thick.
Leaves smaller than the water.	
Foliola. The little leaves composing each of the larger leaves of a deeper colour, narrower, and covered with white hairs.	Large, fresh, pale, green, and smooth.
Flowers, brighter red.	Flowers, pale red.
Clusters smaller than in the other.	
Seed, small.	Seed, large and soft.

The wood valerian has characters intermediate. The distinctions in regard to the roots may be averaged thus:—

Heath Valerian.	*Water Valerian.*
Colour brown, nearly olive.	Pale colour, nearly yellow.
Radicles, long, slender, with numerous hairy threads.	Thicker fibres, more naked.
Roots, firm, tough.	Tender, easily broken.
Smell, fresh, aromatic, slightly fœtid.	No freshness, little aroma, heavy fœtid smell, cats busy themselves about this more than about the other roots.

The only difference in the roots of the wood valerian is a tawny, deep-brown colour. Dr Epps has proved most satisfactorily, that the heath valerian root is to be preferred; and next to it the wood valerian. Much, however, very much, depends on the soil in which either of the varieties grow, for we have found excellent roots of the water variety grown in a dry light soil.

The above characters refer more exclusively to the recent roots; the dry roots also may be distinguished by the colours above described, the hairy threads and the toughness. The heath valerian root when dry has no cavity in the centre as the water valerian has. In the former, a circle of greenish or pale hue surrounding the pith is observed; in the water, this circle is often black. The taste of the heath is spicy and pleasant, and after a little chewing, bitter and astringent, which is not the case with the water. If the root be dirty and dry, macerating the same in water will soon bring out the colour.

The collectors of this root are generally very unfit for the employment; they are very imperfectly acquainted with botany, possessing but a very general knowledge of the external character of the plant. Their object is quantity not quality; they take the roots most easily obtained, and most easily drawn up. The water valerian growing in clusters, and in moist soil, is both most easily and abundantly obtained, and most easily drawn up. The heath valerian is more scattered in its growth, and growing in a close soil; the roots are obtained with greater difficulty. Dr Hill states, "that he raised a plant of the smooth water crow foot (poisonous) from a root sold as valerian; and, indeed, the root of the crow foot very much resembles that of valerian in appearance, while it is so acrid as to raise blisters. Another circumstance regarding the collection, is, that the root is taken up when the plant has shot up the stalk, and even when it is in flower, which enables them to draw it more easily; now the plant should be gathered soon after the stalk has begun to appear above the earth. After the stalk is fully risen, the plant has lost much of its virtues. But in addition to these in the collection, the roots are gathered when the plants are in a state of flowering, a period when the juices of the root are exhausted, all the energies of the plant, and especially an annual plant, being directed to the production of flowers and seed, or fruit. It should be remembered, that an annual may, by its flowering being prevented, be made to exist for another

year. In other words, a plant by exhausting itself by flowering, and would die, is perpetuated by this exhaustion being prevented.

The middle of May is the time of collecting the roots of the valerian.

We have been thus particular in detailing the above facts respecting valerian, because we know it to be a medicine of very considerable efficacy in a variety of diseases; but although we have followed the arrangement of Dr Epps, we cannot say that we are indebted to him for any information, for it is upwards of thirty years since we were familiar with the circumstances that tended to impeach this valuable root as an unworthy member of the materia medica.

The best way to obtain the root of the best quality is to obtain the seed of the true heath valerian, and sow it in a light dry soil, taken (if possible) from the part in which it naturally delights; after it rises till the flower or rather its germ is about to be formed, the stalks are to be cut off, and the plant dusted over with a thin coating of earth, as sand is scattered on a kitchen floor, a few plants being preserved for seed. In this way the plant will remain in the ground till the next spring, when the roots may be dug up in May.

No other species of the valerian should be kept in the garden or field where it is cultivated, as the bees or wind would bastardise it. The valerian is a very pretty flower, and it might be so disposed in patches in the most open and sunny situations, as to become an ornament to the garden, and suitable food for bees. The soil on which it is raised should not be manured, but must be kept free of weeds.

Medical Properties. Valerian is spoken of by Dioscorides, who derives its Greek name from φυ, (Phu,) on account of its smell, and this writer, as well as Galen, mentions it as an aromatic. D. Panorolus proves its usefulness in epilepsy. Haller recommends it in hysterical affections, and also in epilepsy. Fordyce praises it highly; and Whytt, one of the first authorities on nervous diseases, states that he used it with success in epilepsy combined with manna. Calumna cured epilepsy with valerian after other means failed. M. Marchant relates two cases of epilepsy where it was useful, and the patients voided great quantities of worms; he always purged before using it. Withering recommends it as a laxative, and states that it acts when other means more violent have failed. Mr Mudge cured catalepsy by half ounce doses of the powder. Fordyce recommends it in dullness of vision. Dr Home has found benefit from its use in nervous affections. Dr Epps has seen many benefits from its use, but has in other cases been much disappointed; while Dr Woodville asserts, that he has seldom found it answer the expectation of the prescriber; and as his opinions have been copied into the text-books on materia medica for the last thirty years, a great majority of the present members of the profession servilely adopt his opinions. Those, however, who have read with attention the preceding remarks, will not be astonished, seeing that valerian, the favourite of Dioscorides, Galen, Haller, Whytt, Fordyce, and other eminent physicians, has fallen a little in the back ground, seeing it is seldom to be met, although an indigenous plant of good quality.

The virtues of valerian reside entirely in an essential oil, and it should not, therefore, be exhibited in decoction or watery extract, although an extract is ordered by the Dublin college. Its other officinal preparations are an infusion, and a simple and ammoniated tincture.

Infusion of Valerian.

Valerian root in coarse powder, two drams.
Boiling water, seven ounces.
Macerate for an hour, and when cold, strain.

This is the formula of the Dublin college, but we think three or even four drams of the root necessary for eight ounces, or half a pint of infusion. If, however, three drams in place of two are used to seven ounces of water, and one ounce of the following, the simple tincture, added to the strained infusion, the mixture will be rich enough. This infusion is antispasmodic, tonic, and aperient, and is administered in hysteria and other nervous affections, in doses of half a wine glassful three times a day. Half a dram of mace infused with the valerian tends to cover its disagreeable flavour.

Tincture of Valerian.

Two ounces of valerian root cut small and bruised.
Proof spirit, whisky, or brandy, one pint.
Macerate for seven days, and filter or strain

This is also antispasmodic, stimulant, and tonic. It is given in nervous and hysterical affections, in doses of a tea spoonful or two, or even half an ounce, in cold water, mace, ginger, or clove tea. It is inferior either to the powder or infusion, but as it keeps, is always ready on an emergency.

Ammoniated Tincture of Valerian. This is made precisely in the same way as the preceding simple tincture, only volatile aromatic spirit is substituted for proof spirit.

This is preferable to the other tincture, and is an excellent family medicine. Its dose is one or two tea spoonfuls in milk or some bland fluid, as the causticity or volatility of the ammoniated spirit requires to be more diluted than the common. The common dose of the powder is from a scruple to a dram.

The flowering tops of valerian, although they do not possess the powerful properties of the root, are not altogether inert, and the flowers quickly dried between the folds of paper before a fire, and kept in a close tin canister like tea, furnishes a most suitable common drink for the nervous and hysterical. An ounce of the

flowers, five grains of mace, and five or six cloves, infused in a pint of boiling water, and taken in the course of a day, will be found tonic and exhilarating, while at the same time it tends to soothe the system. Any quantity of these flowers may be raised on any piece of waste, but protected ground, by an annual sowing, or they may find a place in the garden.

There is a foreign oil of valerian, but we have never had an opportunity of trying its effects; but as the virtue of the root resides in the oil, there is no doubt, if it can be obtained in sufficient quantity, and at a moderate price, it will prove a most useful medicine. Newman, however, failed in obtaining any separable oil. A distilled water is also obtained from the root highly impregnated with its smell and virtues, and is much used on the continent in doses of a wine glassful three times a day. It is certainly a convenient preparation.

Nothing but a conviction of its great utility, and a sense of our obligations to present our readers with a particular account of indigenous native plants, or rather their virtues, could induce us to have occupied such a space with valerian root.

VALVE. There are a variety of valves in the human body, all calculated to serve wise and important purposes. A valve is a thin and transparent membrane, situated within certain vessels, as arteries, veins, and absorbents, whose office appears to be, to prevent the contents of the vessel from flowing back. Those most deserving of attention, are the valve of the colon, the eustachian valve, the mitral, and semilunar valves, the tricuspid valves, and the valvulæ conniventes, which last are the semilunar folds formed of the villous coat of the intestines, whose use appears to be to increase the surface of the intestines, and doubtless other important purposes of which we are yet ignorant.

VANILLA. The plant which affords this fruit is the *Epidendrum Vanilla*, of Linnæus. The fruit is a long flattish pod, containing, under a wrinkled brittle shell, a reddish brown pulp, with small shining black seeds. Vanillas have an unctuous aromatic taste, and a fragrant smell, like that of some of the finer balsams heightened with musk. Although chiefly used as perfumes, they are said to possess aphrodisiac virtues. They are, doubtless, tonic and stimulating, and those who feel the want of medicines of that class, may use vanillas in moderation with perfect safety, and many have imagined they did so with advantage.

VAPOUR BATH. The vapour or steam bath may be regarded as a modification of the hot bath ; but its effects are much less violent. The most usual mode of employing it is to expose the naked body in a room, into which the steam of hot water may be admitted. This room is generally heated to a temperature considerably above that of the atmosphere, and the body is suffered to remain for some time in this heated air, the common effect of which is, to increase its temperature, and to accelerate the circulation of the blood. After some time, the steam is admitted, when the former symptoms are removed, and a profuse perspiration is produced. This is usually promoted by friction, and removal to a warm bed. The general effect of this process is to relax the body, remove obstructions of the skin, alleviate pain and spasmodic contractions, and promote sleep. In the vapour bath the stimulant power of heat is modified and tempered by the moisture diffused through the air; and, as the elastic vapour, like air, is a less powerful conductor of heat than a watery fluid, the effect of vapour in raising the temperature of the body is much less than that of the hot bath. Its heating effect is also further diminished by the copious perspiration that ensues; so that, on all accounts, the vapour bath is safer, and, in most cases, more effectual, than the hot water bath.

VARICOCELE. A disease of the veins of the spermatic cord or those of the scrotum. The veins become enlarged, tortuous, and their coats thickened, so as to cause a swelling of the scrotum or cord. Varicocele of the cord, which is the more common form of the disease, may be mistaken for scrotal hernia, from the swelling being in the same position ; but if the patient be placed in the recumbent position, and the swelling reduced, and then the fingers placed over the abdominal ring, if the swelling be a hernia it cannot re-appear so long as the patient is kept in that posture and pressure with the finger over the abdominal ring kept up; whereas in varicocele, the swelling will return very rapidly under these circumstances, as the position and pressure favour the flow of the blood towards, and its obstruction in the dilated veins of this part.

The treatment of varicocele is either radical or palliative. The radical cure is effected by various operative measures, which it would be out of place to describe in a work like the present, as they can only be performed by a skilful surgeon. The palliative treatment consists of confinement to the recumbent position at the commencement of the disease; keeping the bowels gently open so as to prevent accumulation of fæces in the large intestine; and the local palliative treatment consists iu wearing a well fitted suspensory bandage, so as to keep up a degree of pressure on the dilated veins. See *Veins*.

VARIX. A dilated and tortuous state of the veins, known in common language by the name of knotted veins. See *Veins*.

VEAL. This name is given to the flesh of the calf. Veal, like lamb and other young meat, contains a large quantity of gelatine, and

makes excellent nutritive soups and jellies. It is, however, less easy of digestion than mutton or beef, and is, therefore, improper as an article of diet for dyspeptics, or persons of weak stomachs; but there is no objection to its use as an article of diet for persons in good health and of active habits

VEGETABLE DIET. The various articles of nourishment we derive from the vegetable kingdom, may with propriety be divided into five orders, viz. 1. The different species of farina, or grain, such as wheat, rye, barley, oats, and rice. 2. The legumes, or pulse, such as peas, beans, &c. 3. The various kinds of salads and pot-herbs. 4. All the different kinds of roots And, 5. Fruits.

The farinaceous vegetables are, of all others, the most wholesome and nourishing, and of these the preference is justly given to wheat. Bread is with propriety called the staff of life. Home-made leavened bread, of a day or two old, is extremely easy of digestion, wholesome, and nutritious; but we cannot speak in such favourable terms of bakers' bread, and new bread of any sort is difficult of digestion, and unwholesome. It is of some consequence that the invalid should have home-made bread.

Bread made with new flour is more palatable than that made with old, but is not so digestible. Of the two sorts of bread, viz. the fine white bread, and the coarse brown bread, the latter is the most easy of digestion, and the most nutritive. This though contrary to the general belief, is an undoubted fact, which has been authenticated by actual experiment, proving that some animals fed on fine bread with water, soon die; but if fed on coarse bread with water, their health is preserved.

A mixture of rye-flour and wheat-flour, in equal proportions, or as one-third of the former to two-thirds of the latter, forms very good bread, and is particularly eligible for the costive.

There is no sort of unleavened bread which is wholesome, excepting biscuit.

Plain biscuit is very proper for the sick and delicate, from being lighter, and less liable to create acidity and flatulence, than even good bread. The best biscuits, however, are not those which are made with the finest flour, for the reason just adduced.

Puddings made with flour are, for the most part wholesome, when taken in moderate quantity, but are not so easy of digestion as bread, or animal food. The simpler the pudding is, and the nearer it approaches to the nature of bread, the more digestible and wholesome it is.

All puddings formed with much fat or butter, or mixed with fat in the cooking, are to be avoided by the invalid as indigestible. Pastry can be taken with impunity only by those accustomed to labour hard; the sedentary and the invalid find it very difficult of digestion, and unwholesome. Barley is a nutritious, wholesome, and very useful vegetable. Pearl barley, well boiled in water, forms a diluting, slightly nutritive drink, of much service to all sick persons. In the summer it is a very wholesome drink for persons generally. Oats, when boiled or deprived of the husk, and reduced to groats or meal, are used as a common article of diet for the infirm and sick, in Great Britain, France, and Germany. About fifty years ago, it was calculated, that nearly a fourth part of the inhabitants of Great Britain lived upon oatbread; and it is supposed, that under an improved system of agriculture, more nourishment per acre may be obtained from oats, than from the same quantity of barley or rye; but to wheat it is evidently inferior. Boiled in water, oats impart a thick mucilage, which is very nourishing, wholesome, and digestible. This refers only to the mucilage obtained from genuine groats, or oatmeal, procured from a mealman who can be depended upon, as the oatmeal in common use is, we are sorry to say, too frequently an impure article, and it is to be feared that all patent prepared groats and meals, as they are called, are adulterated, and not worthy of confidence.

Rice is a nutritious and wholesome vegetable. It is easy of digestion, when taken in conjunction with some condiment, as cinnamon, nutmeg, allspice, and the like; these additions make it more palatable, as well as more wholesome, and obviate its tendency to confine the bowels. It is almost the only food of the native inhabitants of India, Burmah, and other populous Eastern countries, which renders it probable, that it furnishes subsistence to greater numbers of human beings than all the other grains put together. All vegetables of the pulse kind are liable to strong objections, as articles of diet for civilized man. They are very indigestible, heating, productive of great flatulence, and contain little nourishment. Both peas and beans, whether green or dried, oppress the stomach, and are fit to be eaten only by the strong and laborious, or those who take much exercise. Pea-soup, although most grateful in cold weather, is very indigestible and unwholesome, at least to all but the robust, who use much active exercise abroad.

French beans, however, are among the best vegetables our gardens produce. I mean the young green pod, eaten as it usually is in England.

The best pot-herbs are asparagus and artichokes, more especially to those troubled with gravel. Young spring greens and cabbages are wholesome, but after the spring season they become indigestible, flatulent, and pernicious. Young brocoli and cauliflower also are useful vegetables; but I think spinage rarely agrees with the human stomach.

Salads, lettuce, and all undressed vegetables of this kind, contain little nourishment, and are not much to be recommended. The bitterest sorts are the most wholesome and digestible. Radishes and cucumbers should not be touched by the weakly or the invalid. Lettuce is the most wholesome of this description of vegetable, and when blanched, from being soporific, may sometimes be advantageously used at supper by those who are frequently disturbed by restless nights.

The fourth order of vegetables consists of all the esculent roots, of which the potato, the turnip, and the onion, are the most wholesome and nutritious, and the most easy of digestion. We may consider it as an unerring rule, that any kind of aliment, for which we feel a natural and permanent appetite, is salutary and conformable to our nature. Of this kind is that invaluable root the potato, which in the most simple preparation, and without any addition but salt, affords an agreeable and wholesome food to almost every person. It is the best substitute we possess for bread, being a light, alimentary substance, neither viscid nor flatulent, and having little tendency to acidity. It is, consequently, very nutritious, and, for the most part, easy of digestion. A few dyspeptic and bilious people, indeed, find it to disagree, more especially if not well cooked, or if not of a good sort; but this is a rare occurrence. A convincing proof of its highly nutritive qualities is, that a great part of the arrow-root sold in England is extracted from it. The dry mealy sort of potato is the most easy of digestion, and by far the most nourishing; and the simplest mode of preparing them for the table is the best. Mashed potatoes are more difficult of digestion. The valetudinarian should in general avoid the young potato till after the first of August, on account of its indigestible nature when very young.

The history of the potato conveys to us a most instructive lesson, forcibly reminding us of the extraordinary lengths to which prejudice will carry mankind, and showing us by what apparently trivial circumstances this prejudice is often removed, when the most powerful and influential arguments have failed to weaken it. The introduction of this valuable root to the gardens and tables of the people received, for more than two centuries, an unexampled opposition from vulgar prejudice, which all the philosophy of the age was unable to dissipate, until Louis XV. of France wore a bunch of the flowers of the potato in the midst of his court on a day of festivity; the people then, for the first time, obsequiously acknowleged its usefulness, and its cultivation, as an article of food, soon became universal. Now its stalk, considered as a testile plant, produces in Austria a cottony flax. In Sweden, sugar is extracted from its roots. By combustion its different parts yield a very considerable quantity of potass. Its apples, when ripe, ferment and yield vinegar by exposure, or spirit by distillation. Its tubercles, made into a pulp, are a substitute for soap in bleaching. Cooked by steam, the potato is one of the most wholesome and nutritious, and at the same time, the most economical of all vegetable aliments. By different manipulations it furnishes two kinds of flour, a gruel, and a parenchyma, which in times of scarcity may be made into bread, or applied to increase the bulk of bread made from grain; and its starch is little, if at all, inferior to the Indian arrow-root. Such are the numerous resources which this invaluable plant is calculated to furnish.

Turnips are nutritive, easily digested, and very wholesome. Sir John Sinclair states, that they in general disagree with those who have weak stomachs, and are subject to flatulency, but this is certainly a mistake. All vegetables are more or less flatulent, but turnips are among those which are least so; and we are persuaded extensive and accurate observation will prove, that they almost always agree remarkably well with weak stomachs, and are therefore among the best vegetables which those troubled with indigestion and bilious complaints can resort to. They are slightly laxative, which is an additional recommendation in such cases.

Onions sometimes assist digestion, although they cannot, in my opinion, be considered very nourishing. They are best suited to persons of a cold phlegmatic habit; and those whose stomachs require a stimulus. Parsnips, when well boiled, are nutritive and wholesome. Carrots are digested with difficulty, and are not wholesome.

Of the class of fruits, the best are apples, pears, peaches, apricots, strawberries, raspberries, gooseberries, oranges, red and white currants, and grapes; and in point of digestibility and wholesomeness, they, perhaps, rank as now placed; the apple being, on the whole, the first, both as it respects utility, and its wholesome qualities. The baked apple is a most wholesome fruit. Strawberries are a very cooling, laxative, and wholesome fruit, and are supposed to possess qualities unfavourable to the formation of gravel and stone. Of course, these fruits are conducive to the health and nourishment of the body only when quite ripe; and of apples and pears, the more mellow and tender the fruit the better. The pine-apple is most delicious, but ought to be eaten sparingly, more especially by elderly persons, on whom it sometimes takes a very extraordinary effect. Cherries, plums, olives, melons, and all kinds of nuts, are most difficult of digestion, and fit only for the strong and active. Black currants have a strong tendency to affect the bowels, and are

not to be recommended in diet. As a medicine, when made into jam or jelly, they are highly useful in sore throat.

Of dried fruits, the most valuable are grapes or raisins, plums or prunes, and figs. These are very nutritious, but, from the great quantity of saccharine matter they contain, are much disposed to oppress the stomach, and, consequently, to prove indigestible. They cannot, in general, with any propriety, be recommended to the weakly, or the invalid.

As to the consumption of fruits, the following remarks merit attention. 1. Being abundantly produced by nature at that season of the year, when such substances with the acid, refreshing, and diluting qualities they possess, are particularly acceptable, they are highly beneficial to most persons in summer, and should therefore be taken in proper quantity. 2. To young persons, full of blood, they are particularly useful, on account of their tending to allay excessive heat, and moderate the circulation. Such individuals ought to make them a principal part of their food in the summer. 3. To such also as are liable to slight irregular fevers, or to frequent feverishness, they are truly valuable, and may be considered as both food and medicine. In this case, the best time of taking them is at meals, and whenever the individuals find themselves preternaturally heated. 4. For persons in tolerable health, the best time for eating fruit is after dinner, and at supper. In summer, a moderate quantity of the most wholesome fruit, with a little bread or biscuit, forms one of the most desirable suppers that can be indulged in, and particularly for the valetudinarian.

There are a few miscellaneous articles used as food which it is proper to notice, the chief of which are arrow-root, tapioca, sago, and salep. All these are nourishing and easily digested, when taken with bread or biscuit, the addition of which renders them not only lighter on the stomach, but more nutritive. Milk also is a valuable addition to them. Indian arrow-root is justly considered to possess the most of a nutritious quality, and we think the rest stand in the order here placed. They all form very suitable nourishment for the sick and convalescent; but when they turn acid on the stomach, which they often will do when that organ is weak, it requires a little management to render them agreeable and wholesome. In this case, they should be mixed with a good portion of condiment, as cinnamon, allspice, &c., with or without a little biscuit powder, or grated bread; a little port or sherry wine may also be added, if admissible, and a little well-made toast, or plain biscuit, be eaten at the same time. By these means, the tendency to acidity may generally be counteracted. The tapioca, or sago, mixed with bread and milk, makes a very good pudding.

But there is a point connected with the consumption of arrow-root, and almost all other articles which are supposed to contain much nutriment in a very small space, that ought to be particularly adverted to, and we know not that we can select a better place to notice it in, than the present. The point alluded to refers to the concentration of aliment, on which very erroneous and injurious notions generally prevail. People in general suppose, that by extracting and insulating what they conceive to be the nutritious principle or principles of any given alimentary substance, they are able with greater certainty and effect to nourish the body of the sick and delicate; thus we continually hear of strong beef-tea, pure arrow-root jelly, and the like, prepared with great care for such persons. But many of my readers will be much surprised to hear, that a dog fed on the strongest beef-tea alone rapidly emaciates, and dies within a short period, and that precisely the same consequences would ensue on confining the strongest men to the same food. It is also a fact, that a dog fed on fine white bread (usually considered by far the most nutritive kind of bread,) and water, both at discretion, does not live beyond the fiftieth day; and that a rabbit or Guinea pig, fed on the best wheat alone, dies, with all the symptoms of starvation, commonly within a fortnight, and sometimes much sooner; the same effects follow if they are fed on oats or barley, singly. An ass, fed with rice boiled in water, does not survive above a fortnight. The reason of all this is, that diversity of aliment, and a certain bulk, are essential to nutrition; and it teaches us, that we ought never to confine any individual, especially if sick, to one or two sorts of concentrated food; and that we should not endeavour to combine too much nutriment in too small a space. When so given, it will, even in health, be followed by fermentation instead of digestion, as is proved by the fact, that pure arrow-root jelly taken alone, or the slightest addition of any other substance, almost invariably acidulates on the stomach; and it does not nourish. It follows that strong soup, beef-tea, arrow-root, animal jellies, and all such articles of diet, should at all times be taken with some other alimentary substance, and particularly with bread.

VEGETABLE POISONS. These are divided usually into three classes, each class being named according to the peculiar manner in which the deleterious plants composing it act on the system when taken. The classes of vegetable poisons are: 1st, Acrid poisons. 2d, Narcotic poisons. 3d, Acro-narcotic poisons. Our readers will perceive that this is the same division under which we classed poisons generally; but although we adopt this, as it is the ordinary arrangement, yet we conceive that

ÆTHUSA CYNAPIUM

FOOL'S PARSLEY.

ARUM MACULATUM

CUCKOO PINT or WAKE ROBIN.

BRYONIA ALBA

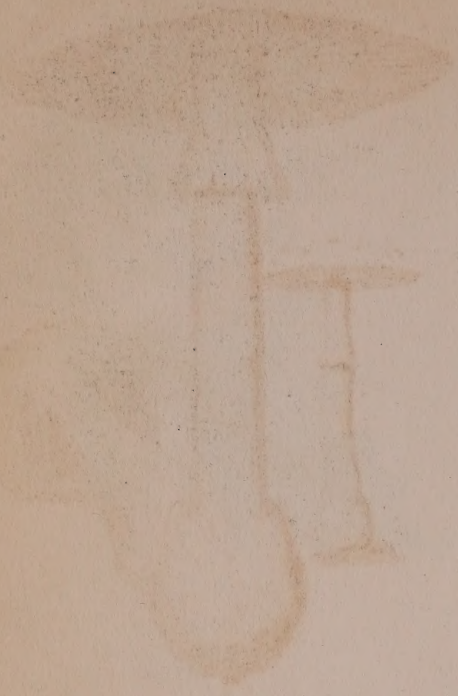
WHITE BRYONY.

CHELIDONIUM MAJUS

GREATER or COMMON CELANDINE.

Published by Blackie & Son, Glasgow.

Jno. Johnstone Sc.



RANUNCULUS ALPESTRIS

ALPINE WHITE CROW-FOOT.

AGARICUS MUSCARIUS

FLY BLOWN MUSHROOM.

(POISONOUS)

DIGITALIS PURPUREA

PURPLE FOX GLOVE.

HELLEBORUS NIGER

BLACK HELLEBORE or CHRISTMAS ROSE.

Published by Blackie & Son, Glasgow. *Jas. Johnstone, Sc.*

it would perhaps be better to divide vegetable poisons simply into narcotic, and acro-narcotic, poisons, for very few vegetable substances prove deleterious simply as acrid poisons; for although, in a great number, violent symptoms of irritation and inflammation of the stomach and intestines are produced by vegetable poisons, similar to those induced by mineral acrid poisons, yet, in most cases, these are accompanied by a peculiar effect on the nervous system, which does not, in general, accompany the action of simple acrid poisons; but, as we have already stated, we shall follow the classification usually adopted.

I. *Acrid poisons.* The principal acrid poisons are the following:

Aconitum Napellus,	Monkshood.
Arum Maculatum,	Cuckoo Pint, or Wake Robin.
Bryonia Alba,	White Bryony.
Chelidonium Majus,	Greater, or Common Celandine.
Colchicum Autumnale	Meadow Saffron.
Euphorbia,	
Helleborus Niger,	Black Hellebore, or Christmas Rose.
Juniperus Sabina,	Savine.
Momordica Elaterium,	Elaterium.
Ranunculus Alpestris.	Alpine White Crow Foot.
Scilla Maritima,	Squill.
Veratrum Album,	White Hellebore.

N.B.—All the plants of the natural family of Ranunculi are acrid poisons, although the R. Alpestris is here given as being the most violent.

The effects of all this class of acrid vegetable poisons are nearly the same, viz., a bitter pungent taste in the mouth, excessive heat, dryness of the throat, and a sense of constriction about the fauces, violent and continued vomiting and purging, excruciating burning pain of epigastrium and bowels, strong quick pulse, laborious respiration, symptoms of drunkenness, sometimes dilatation of the pupils, accompanied with coma, and frequently ending in death. The symptoms of drunkenness, and dilated pupils, and coma, evidently bear out what we said at the commencement of this article, that those vegetable poisons classed as acrid, would come better under the class of acro-narcotic poisons.

II. *Narcotic vegetable poisons.* The principal poisons of this class are:

Æthusa Cynapium, or	Fool's Parsley.
Atropa Belladona,	Belladona, or Deadly Nightshade.
Conum Maculatum,	Common Hemlock.
Datura Stramonium,	Stramonium, or Thorn Apple.
Digitalis Purpurea,	Purple Foxglove.
Hyosciamus Niger,	Black Henbane.
Lactuca Virosa,	Poisonous Lettuce.
Prunus Laurus Cerasus,	Cherry Laurel.
Nictoiana Tabacum,	Tobacco.
Solanum Dulcamara,	Bitter Sweet.
Strychnos Nux Vomica,	Nux Vomica.

Vegetable narcotic poisons, when swallowed, or even when applied to ulcerated parts, or introduced into wounds, produce the following effects—stupor, drowsiness, heavy pain in the head, with frequent desire to vomit; a state resembling drunkenness, considerable dilatation of the pupil, delirium, sometimes pain or convulsions, paralysis of the limbs; the pulse, at first strong and full, soon becomes very variable, and gradually becomes slow and weak; there is sometimes purging, and almost always difficult breathing, which is generally the precursor of death, if active measures are not used.

III. *Acro-narcotic vegetable poisons.* In this class, as we have already observed, we would include all, or at least nearly all, the acrid vegetable poisons; but the poisonous vegetables generally referred to this class, are only the various fungi agarics, or poisonous mushrooms. Of these the agaricus muscarius, or fly-blown mushroom, is by far the most dangerous and violent poison, and to enable our readers to avoid it, we have given a representation of it in Plate VIII. of vegetable poisons.

The effects of the acro-narcotic poisons on the system being, as the name implies, a conjunction of the effects of the two classes already described, we shall be very brief in our description. Shortly after being taken, there arise nausea, heat and pain in the stomach and bowels, then vomiting and purging, thirst, convulsions, small quick pulse, delirium, and coma, terminating in death if the action of the poison be not arrested.

Treatment. In cases of poisoning by acrid vegetable poisons, if the poison has provoked vomiting, and the effects still continue, we may render these less painful by administering bland oleaginous or mucilaginous drinks, such as lintseed tea, &c.; but if the symptoms of insensibility come on without being preceded by vomiting, we ought to excite it by powerful emetics, or apply the stomach pump to evacuate the poisonous matter, and then administer demulcents, and some oily purgative. We should then make the patient drink plentifully of strong coffee, and some advise diluted vinegar. If the pain, thirst, and general fever, indicate inflammatory action, then depletion, by means of venesection, or cupping, over the epigastrium, should be used, and a large mustard blister applied over the abdomen. When symptoms of coma, and weakness of the pulse, with general sinking supervene, then we must employ stimulants, and the best in such cases are camphor and ether in frequently repeated doses.

In cases of poisoning by pure narcotics, the stomach should at once be evacuated by the stomach-pump, or some powerful emetics, such as the sulphate of zinc or copper, and these should be followed by a brisk purgative; then strong coffee should be given freely, and occasional doses of camphor mixture, and if these means fail in obviating sleepiness, bleeding, strong mustard blisters, and the shower bath, must be had recourse to. Vegetable acids should not be given, as they render most narcotics more active, and the patient should be kept constantly moving about. When respiration becomes irregular or deficient, then artificial respiration should be used, for in some cases patients have been resuscitated by such means.

In cases of poisoning by acro-narcotic vege-

tables, the stomach and bowels should be freely evacuated, as recommended in cases of irritant or acrid poisons, and antiphlogistic remedies used if inflammatory symptoms supervene; afterwards the treatment is the same as that recommended in cases of narcotic poisons.

Most of the vegetable poisons and their medical properties (for in proper doses almost all the vegetable poisons are powerful and active remedies,) will be found described in separate articles throughout the work, and correct representations of the most dangerous and common poisonous plants indigenous to this country are given in the plates of vegetable poisons. See plates V. VI. VII. VIII.

VEINS. The veins are those blood-vessels which arise by small radicals, or twigs, from capillary arteries, join to form large branches or trunks, and return the residual blood towards the heart after it has been circulated through the different parts of the body by the arteries. (See *Circulation.*) Like the arteries, veins are composed of three proper coats, but these are comparatively thin and flaccid; they are easily distended, and admit of considerable enlargement in a transverse direction; and they are also susceptible of elongation, but not to the same extent as arteries.

The external coat of veins consists of condensed cellular tissue, but is considerably thinner, and of less firm texture than the external tunic of arteries, and it is also more intimately adherent to the next or middle coat which it encloses. The second or middle coat is also thinner and more pliant than that of arteries, and so smooth, as at first sight to appear destitute of fibrous structure; but this is not the case, for fibres do exist, but these are for the most part arranged in a longitudinal direction, a very few only running transversely; this coat is generally stronger in the superficial than in the deep-seated veins. The internal coat is a fine, thin, shining membrane, continuous with that which lines the auricles of the heart. In the veins of the extremities, it is thrown into folds at different intervals, which constitute valves, which are so arranged as to allow the blood to flow freely towards the heart, whilst they effectually prevent its regurgitation backwards into the parts, from whence it had been returned. 'These valves,' says Mr Quain, 'may indeed be likened to so many small flood-gates, all inclined in the direction towards which the stream flows, marking thereby its natural course, and constructed so as to prevent its return, at the same time, that by supporting the column of blood which intervenes between them and the heart, and preventing it from gravitating on that which follows, they remove a considerable impediment to its progress along the veins.' They are very numerous in the extremities, particularly in the more depending parts, and in the superficial vessels.

They are said not to occur in the veins of the great cavities, but they exist at the termination of some of them, viz. the coronary vein of the heart and vena azygos. Although the veins form one great system of blood-vessels, and are characterized by certain general anatomical marks, still some parts of the venous system have peculiarities, in which they differ greatly from the general venous system. Thus we have stated, that veins in general run from branches to form trunks, and return the residual blood towards the right auricle of the heart. But we find the vena porta circulating its dark blood through the liver, from trunk to branch, in the manner of an artery; and again we find the pulmonary veins, carrying florid arterial blood towards the left auricle of the heart, whilst the pulmonary artery circulates dark venous blood through the lungs, for the purpose of its being arterialized. The blood contained in veins, with the exception above stated, is of a dark colour, differing considerably in its qualities from arterial blood, and is unfit for the purposes of nutrition, until it has again undergone the changes produced on it by respiration, whilst it circulates through the lungs. (See *Blood*, *Circulation*, and *Respiration.*) It is generally from the venous system which we abstract blood by general blooding-letting, by opening one of the superficial veins; and to make the vein rise, so as to be easily struck, we tie a bandage or tape pretty firmly between the point to be opened and the heart, so as to obstruct the flow of blood through the vessel above that part, till we have obtained sufficient blood; for the details of the operation of venesection, see *Blood letting*, and *Venesection*

As regards the position and names of the principal veins in the human body, we have given a Plate of them, with a table of reference, under the article *Blood-vessels*, which will be more readily understood by the general reader than by any description we could give in a work like the present.

VEINS, Inflammation of, or *Phlebitis.* Veins are very liable to inflammation; and the disease is one attended with great danger. Inflammation of a vein is generally the consequence of a wound, as in blood-letting, amputation, or some of the operations practised for the cure of varicose veins, a disease, which we will consider immediately; and it may also arise from severe accidents, such as burns or compound fractures. Wounds of the large veins are very dangerous, and bleeding from them should always, if possible, be stopped by compression; they must never be tied except as a last resource.

Inflammation of veins may terminate in resolution, or lymph may be secreted, its coats

become thickened, adhesion of internal surfaces take place, obliterating the canal of the vessel to a considerable extent. Or suppuration may occur, either between its coats, or the pus may be secreted by the internal coat, and effused into the cavity of the vessel. This last is the more frequent occurrence, and then the pus is prevented getting into the general circulation, by the vessel becoming plugged with lymph above the diseased part, so that the pus accumulates in the lower part of the vein, forming an abscess. Suppuration of a vein is always attended with great constitutional irritation, and typhoid symptoms. In some cases the inflammatory action spreads rapidly along the internal coat of the vein, and extends to the lining membrane of the right auricle of the heart, producing most violent constitutional disturbance, and speedily terminating in death.

In cases of inflammation of a vein from a wound, the integuments along the course of the inflamed vessels are of dark dusky red hue. This is soon succeeded by general erysipelatous redness of the limb, with tension of the parts, and great pain on pressure. There is also frequently œdematous swelling, with diffuse infiltration of unhealthy purulent matter into the cellular tissue of the limb, sometimes terminating in extensive sloughing, or gangrene of the part. This disease, when following venesection, has often been attributed to the use of a foul lancet; and although it might undoubtedly be so caused occasionally, yet we find it occurring where perfectly clean instruments have been used; and at times we find it almost epidemic, several cases occurring about the same time. It may also depend on a bad state of the constitution at the time of the operation being performed.

Inflammation of veins is a very unmanageable disease; at the first we may abstract blood from the system generally, if the patient be able to bear it; but this must always be done with extreme caution, as general typhoid symptoms, with deep and extensive mortification of the part affected, sometimes follow general bloodletting in this disease. Even local bleeding by leeches or incisions must be cautiously employed. As a general plan of treatment, we would recommend the application of leeches, followed by warm fomentations along the course of the inflamed vessel; and at the same time we would clear out the bowels by means of a full dose of calomel, followed by a saline draught. Doses of the antimonial solution combined with morphia, should also be administered, both to cause perspiration, and to lower the circulation. After the leeches have ceased bleeding, warm fomentations with solution of sugar of lead and opium, should be kept constantly applied to the inflamed parts, and the limb kept perfectly quiet. If pus has evidently formed in the vein, it should be opened freely, and treated as a common abscess. When diffuse cellular infiltration of the limb has taken place, free incisions, and poultices, and fomentations, are required, followed afterwards by proper dressings and bandaged. When in spite of all the means we have directed, the disease gains ground, accompanied with great constitutional irritation and typhoid symptoms, then we must exhibit calomel and opium, with camphor, musk, or some of the other stimuli, and even stimulants of a more permanent nature are generally required, such as wine, brandy, quinine, &c.; but in spite of every remedy, the disease is very frequently fatal.

VEINS, Varicose, or Knotted. Veins often become dilated, and assume a tortuous course, presenting to the touch an elastic soft feel, except in the situation of their valves, where they form hard knotty swellings. These lumps, which are formed in the situation of the valves, are generally of a dark bluish colour; and this is the state called varix or varicose veins. This disease, which is of comparatively rare occurrence in the veins of the upper extremities, occurs most frequently in the lower limbs, and is indeed a very common affection there, but it also occurs in the veins of the scrotum in the male, and labia in the female, forming the disease termed varicocele, and in the veins at the lower part of the great intestine or rectum, forming those tumours called bleeding piles. Varicose veins may take on a subacute inflammatory action, and from thickening of their coats, and effusion of coagulable lymph, the canal of the vessels may be obliterated, forming small firm tumours; and this is the manner in which blind piles, as they are termed, seem to be formed. Occasionally the blood contained in the dilated and tortuous portion of the vessel coagulates, causing obliteration of the canal of the vein. But these are not very general occurrences when the disease is in the extremities, for it not unfrequently happens that ulceration of the coats of the diseased vein takes place, attended with profuse hæmorrhage; and if prompt assistance be not afforded, the patient may speedily die from loss of blood.

In the lower limbs, varix is generally, after a little time, complicated, with peculiar indolent ulcers, and so long as the varicose state of the veins remains, these ulcers may be looked upon as incurable, for even when by complete rest and proper dressings, they have been brought to cicatrize, the part soon ulcerates again, when the patient begins to walk about.

Varix is caused by the presence of some obstruction to the free return of the venous blood towards the heart, and such obstruction may arise from tumours within the abdomen, or enlargement of the liver, giving rise to pressure on the ascending vena cava, or by pregnancy, or

collection of feculent matter from constipation of the bowels pressing upon the great iliac veins, and it may also arise from the use of tight garters, or other ligatures applied to the upper part of the limb. It will be readily understood therefore, why the lower limbs should be the most common seat of this disease, for when the veins in these are obstructed and dilated, the valves are insufficient to fill the calibre of the vessels, and consequently the ascending column of blood being deprived of their support, its weight falls upon the lower and smaller veins, which have thus to sustain the column of blood in the superficial veins of the whole limb, and thereby the disease becomes aggravated.

Treatment. As far as the domestic practitioner is warranted in interfering, the treatment is merely palliative. When the disease arises during pregnancy, of course nothing can be done until the cause be removed. When it seems to depend on constipation of the lower part of the bowels, enemata and purgatives are to be used to clear out the collected fæces, and laxatives given afterwards to keep the bowels gently open, and prevent similar collections in future. As regards the local treatment, that consists in enjoining complete rest in the horizontal posture, at the commencement of the disease, so as to favour the return of the venous blood, and prevent further dilatation of the vessel; the application of cold to the limb by bathing it with cold water, twice or thrice a day, conjoined with the above treatment, and the use of a properly applied bandage, or laced stocking, to the limb, will often succeed in producing beneficial effects at this early stage of the disease, Afterwards, however, when the veins have become tortuous and much dilated, (and unfortunately patients seldom apply for relief before this takes place,) all the domestic practice that can be adopted is to employ the laced stockings or bandage, giving the limb as much rest as possible. Surgical aid may even then be of service, for by operaive procedure a radical cure by obliteration of the diseased vein or veins may be effected. Many operations have been proposed for this purpose, such as dividing the veins, and either tying the cut ends or compressing them, or applying a ligature to the healthy trunk of the vein above the diseased part, or by applying potass to the healthy part of the vein to cause inflammation and consequent obliteration of it; all such remedies, however, are attended with considerable risk, and the method which is now almost universally adopted is both much more simple and safe; it consists in introducing a large common sewing needle through the skin and beneath the vein to be obliterated, without piercing its coats; this of course is done a little higher up the limb than where the varix exists. After the needle has been passed fairly beneath the vessel, a thread is applied round the needle in the manner directed for forming the twisted suture. (See *Sutures*,) the patient must be kept quiet for some days, till the needle either makes its way out by ulceration, or is withdrawn when sufficient coagulation has formed. The bowels should be kept gently open, and low diet prescribed, and when the patient begins to move about, he must wear a laced stocking to prevent a return of the disease.

VENEREAL DISEASE, SYPHILIS, OR POX. Under the article *Syphilis* we have already given a sketch of the general history of this formidable disease; at present we intend to enter more fully on the characters of the disease, and the various methods of treatment.

The effects produced by the venereal poison are divided into primary and secondary symptoms; by primary symptoms are meant the local sores produced on the genital organs by the contact of the venereal poison; whilst by the secondary, we mean the constitutional symptoms produced by the absorption of the venereal poison into the system.

Both the primary and secondary symptoms present great variety in their appearances, characters, and tendencies; and, although they are sometimes modified by the constitution of individuals, and by the treatment at first adopted, yet there can be but little doubt that different kinds of the venereal poison exist, giving rise to distinct kinds of primary sores, which again are followed by different constitutional affections. We shall, therefore, first treat of the more simple forms of the disease, which, fortunately, are now the most common; and then of that form to which more properly belongs the title of syphilis, as it originally existed.

The most common kind of primary sore is the simple ulcer; this sometimes commences in the form of a pustule, which soon gives way, and leaves an exposed surface, in which the process of ulceration rapidly proceeds; this form of sore also frequently arises from simple abrasion of the surface. The sore is at first excavated, in consequence of the ulceration proceeding; but after a time the ulceration stops, and fungous granulations shoot up, so that the sore is raised above the level of the surrounding parts; there is no hardness of the edges, nor is there any tendency to sloughing or extension of the ulceration.

The simple ulcer, as well as other sores on the genitals, are produced by contact of morbid secretions, but they may also be produced by contact of natural secretions of an acrid nature, acting on a susceptible surface.

The application of gonorrhœa matter will readily produce ulceration on the glans, penis, or prepuce, particularly if any abrasion or rawness previously existed, and if from want of

attention to cleanliness the matter be allowed to remain on an unbroken surface, a pustule may form and ulceration follow; 'In short,' says Mr Liston, 'the simple elevated sore may arise from application of secretions from an unbroken surface, from inoculation of matter from a similar sore, or spontaneously, from inattention to cleanliness.'

These simple ulcers will produce as readily as any other sores enlargement of the glands of the groin, or what is termed bubo. Buboes caused by affections of the genital organs are situated in the upper row of glands in the groin, whilst those caused by ulcers or other sources of irritation about the foot or lower extremity, are generally situated in the lower tier of glands. The existence of venereal bubo affords us no proof, however, of the nature of the poison absorbed, or the constitutional effects likely to follow; for enlargement of glands from irritation or inflammation of their lymphatics does frequently occur, whether such irritation be produced by a mild or malignant poison, or be owing to causes of a totally different nature.

Another sore which frequently occurs, and which differs but little from the preceding, either in local or constitutional symptoms, is an ulcer with a brownish surface, either on a level with, or above the surrounding parts, with defined and elevated edges, with no cartilaginous hardness, or tendency to spread, by ulceration. The buboes which follow this, differ from those caused by the simple ulcer, in having a great disposition to burrow and form sinuses. From either of these kinds of primary sores, constitutional affections may arise, either during the existence of the primary sore, or some short time after it has healed.

The most usual constitutional symptoms which follow the two primary sores we have just been treating of, are those attendant on a papular eruption. These are the usual febrile symptoms with pains referred to the head, joints, and chest, in which last the pain is often accompanied with dyspnœa. This indisposition is followed by the appearance of a papular or slightly raised eruption on the face and trunk, and also, though in a less degree, on the extremities. The fever generally subsides on the eruption coming freely out, but in other cases, fresh crops of the spots or papulæ succeed the first, and then the febrile symptoms continue more or less severe, till the eruption disappears. The papulæ are small red pimples or elevations, and these do not all appear at once; some will have formed small cones containing matter at their apices, whilst others are mere elevated spots. When these spots begin to fade, they assume a copper tint, and are covered with thin scales in consequence of the desquamation of the cuticle; but this can scarcely be confounded with the scaly eruptions following another species of sore which we have to describe presently. In all eruptive fevers, there is a tendency to sore throat, and affections of the mucous surfaces of the mouth and other parts, and in this eruption we often find that sore throat is complained of; and on examining the parts, we may find the throat red and swollen, and the tonsils enlarged, or even excoriation of the mucous surface, but we will rarely meet with deep ulcerations of the throat. Such is the usual mild nature of these affections, but if the eruption be cut short by the imprudent use of mercury, or exposure to cold, or any other cause, then inflammation of the joints, or of the iris of the eye, frequently follow in a very violent form. Sometimes a pustular eruption, preceded by smart fever, follows these simple primary sores; the pustules, though not in general numerous, are rather large, and when the contained pus is discharged a small ulcer is left, which, on cicatrizing, leaves a dark coloured spot. Sometimes the papular and pustular forms of eruption occur together, a few pustules appearing amongst the papulæ or elevated spots. In both the papular and pustular form of the venereal disease, the use of mercury so as to affect the system, seems to be injurious; but of this we shall speak when considering the methods of treating the various forms of this disease.

The next primary sore which we have to describe, is, perhaps, the most unmanageable and dangerous of any form of the disease; it is the phagedenic, or what was too well known at one period, under the name of black-pox, from the fearful ravages it then produced: in the present day, however, this form is but seldom met with, and this is, perhaps, owing to the fact, that mercury is now exhibited in the venereal complaint with more prudence, and not in every form of the disease; for it is a known fact, that when the use of that mineral is pushed to a great extent in cases even of simple ulcer, it not unfrequently produces so much irritation in the constitution as to aggravate the primary sores, and induce sloughing, or rapid extension by ulceration.

The phagedenic sore is a corroding or eating ulcer without distinct hardness of the surrounding parts, and there is no appearance in the sore of any regeneration of the parts which have been destroyed. It may at first appear either as a pustule or as a mere abrasion. In some cases, its progress is very rapid, the ulcerative process destroying the prepuce and glans penis in a few days; at other times the malignant character of the disease is more deceitful, for the ulcer appears to heal at one point, whilst it burrows and destroys at another, and then the apparently cicatrized part gives way, and ulceration commences afresh, and proceeds rapidly. The ulcerations in this form of disease are often very deep, opening into the body of the penis, and

giving rise to violent bleeding, and this circumstance not unfrequently, indeed generally, is productive of a great sudden improvement on the nature of the sore, but unless other means be used, after a slow healing process, the ulceration may commence again. Sometimes the ulcer assumes another form; a small black spot is observed in the centre of the sore, and this is at first unattended with pain, it enlarges rapidly, however, the part sloughs, exposing an unhealthy surface, which, in turn, is attacked by the malignant action and rapidly destroyed, and from this cause the patient is generally much mutilated, sometimes the whole of the external organs of generation being destroyed. But as we have already observed, this form of disease is much less frequent, and is also of a milder character than formerly.

The secondary eruption which follows this phagedenic primary sore is pustular, but differs in its appearance from the pustular eruption which sometimes follows the simple sores. The febrile symptoms which precede the eruption, are generally much more severe, and when the eruption appears, the pustules soon maturate and give way, leaving deeper ulcers than those which follow the simpler pustular eruption.

These ulcers soon become covered with thick scales or scabs, which increase layer by layer, till in some cases they become elevated above the surrounding parts, and assume a conical form. On the separation of these crusts the sores are found superficial but of unhealthy appearance, and have a tendency to enlarge from ulceration of their circumference. Ulcers of the throat take place of a very dangerous kind, partaking, indeed, of the eating or corroding nature of the primary sore, and these ulcerations rapidly destroy the parts which they attack, and spread backwards, involving the pharynx, soft palate, and posterior part of the nostrils and larynx. The palate and nasal bones also frequently die and exfoliate, so that the hard palate is destroyed, and the nose falls in. The breath is horribly fœtid, a foul sanious discharge flows from the nostrils, excoriating and inflaming the surrounding parts, and the whole countenance is much disfigured. On examining the throat, deep ulcerations will be seen covered by adherent ash-coloured sloughs at some points. Respiration and speech are nasal, and respiration is often much obstructed; when the larynx becomes affected, the patient not unfrequently perishes from suffocation, owing to effusion into the surrounding submucous cellular tissue, giving rise to the disease named œdema glottidis. Indeed, whenever the larynx or windpipe is affected, the patient may be considered as lost, for a peculiar kind of pulmonary consumption generally takes place, owing to the ulceration of the windpipe gradually extending into the bronchial tubes ramified through the lungs. Nocturnal pains, referred principally to the head and lower extremities, also occur during this form of the disease, and the patient suffers from night sweats, which soon reduce him to a state of the greatest debility and exhaustion, under which he gradually sinks.

We now come to consider the last distinct form of the venereal complaint, viz., syphilis or true pox. In this form the primary sore is of a peculiar kind, and is termed a chancre. 'Chancre is a sore, somewhat of a circular form, excavated, without granulations, with matter adhering to the surface, and with a thickened edge and base. The hardness or thickening is very circumscribed, not diffusing itself gradually and imperceptibly into the surrounding parts, but terminating rather abruptly.' Such is Mr Hunter's description of true chancre, and such is the appearance presented by it usually, when situated on the prepuce or the glans penis; generally when first noticed, it has the appearance of a pimple without much surrounding inflammation. Frequently the ulcerated surface is very small, but there is always the abrupt thick margin which distinguishes it from other ulcers. It is seldom that more than one chancre occurs, and it is usually situated either on the glans or prepuce; but in some cases we meet with chancres on the scrotum, or on the dorsum of the penis. Chancre in comparison with the phagedenic ulcer, may be considered as an indolent ulcer, the ulcerative process goes on slowly, and as it advances, the surrounding thickness and hardness increase. Phymosis, or swelling of the foreskin or prepuce, rendering it impossible to uncover the glans penis, sometimes arises from chancre, but not so frequently as in cases of more superficial and active sores. Bubo in the groin frequently occurs from chancre, but differs in no respect from that caused by other sores, at least in as far as regards its appearance and local treatment.

The secondary or constitutional symptoms which follow the form of primary sore called chancre, are readily distinguished from other venereal affections by the peculiar character of the eruption, which is scaly from the beginning. This scaly eruption is generally preceded by an efflorescence or discoloration, which gives the skin a mottled appearance; the eruption appears in patches, which seldom exceed the size of a sixpence, and somewhat resembling those in leprosy; they are separate from each other, and their base is of red coppery hue, and the skin is neither hard nor rough, and seldom covered with crust; as these patches extend, the edges become thickened, whilst the centre remains flattened; in some rare cases the eruption assumes a pustular form with superficial ulcerations. Another secondary symptom of this form of disease is ulceration of the throat, generally confined to the tonsils, and the ulcer is not pre-

ceded by much pain or swelling; 'it is a fair loss of substance, (part being dug out as it were from the body of the tonsils,) with thick matter adhering to it like a slough, which cannot be washed away.'

It is in this form of the venereal complaint where we most frequently meet with secondary affections of the bones, ligaments, and other deep-seated parts, seemingly arising in the first instance from chronic inflammation of the periosteum. Those bones which are nearest the surface generally suffer most, and those of the lower extremities are most generally affected, although at one time disease of the cranial bones was a very frequent occurrence.

The patient complains at first of rheumatic pains, which are most violent towards night, and although the periostatic inflammation is generally subacute, yet in some cases it assumes a very violent form, ending in abscess, with caries and necrosis of the bone. More usually, however, it assumes the subacute form, and gelatinous effusion takes place between the bone and periosteum; deposition of earthy matter next takes place, and thus general thickening, or else a prominent tumour of the bone arises, to which the name of venereal node has been given. Ulcers between the toes, and in other parts of the body, as at the fold of the hips, as well as peculiar inflammatory diseases of the eye, frequently occur during secondary attacks of syphilis. Such are the principal forms of disease arising from venereal causes, but they are often similated by diseases arising from other causes, such as the sibbens or yaws, which are described in another part of the work.

Treatment. The treatment of venereal disease requires the greatest caution and discrimination on the part of the practitioner, and therefore it is scarcely to be trusted to the non-professional, except where medical advice cannot be obtained; we every day see the bad results of persons attempting to treat themselves for this disease from motives of secrecy; and from the same cause they are also very apt to be ensnared by the specious pretensions of uneducated quacks who pretend to cure the disease, and whose indecent advertisements pollute the walls of our large towns and cities, and obtrude themselves at every turn on the gaze of the passenger; nay, are even admitted into the advertising columns of the public newspapers.

Even in the medical profession there is still some difference of opinion regarding the best method of treating this complaint; some altogether condemning the use of mercury in any form of venereal affections as injurious; whilst others again laud it as the only certain method of radically curing the disease. As in most cases, the truth is that neither of these ultra opinions are correct; for although we believe that in many cases, mercury given so as to affect the constitution is hurtful, yet in some cases it is often highly useful as a remedy, when used in moderation. The fact is, that mercury, like many other valuable remedies, has suffered in character from the injudicious praise and practice of its friends, from having been declared a specific in this disease, and from having been pushed too far, so as to cause serious injury to the constitution. At one time, mercury was declared to be a specific in all venereal disorders, and hence it was given in all cases and forms of venereal affection, or supposed venereal affection, even in simple clap, and pushed to a frightful extent, the patient being salivated until he spat several pounds of saliva in the day, till his face was swollen, the teeth loosened, and his tongue swollen and hanging out of the mouth; when the mercurialists sapiently considered that they had affected the patient's constitution, and with good cause too, for the constitution was in general so fully affected, that the patient was seldom afterwards free from disease of the bones, mercurial eruptions, and other diseases, to compensate him for the loss of the secondary venereal symptoms, which, however, he not unfrequently retained into the bargain.

At present, however, a more rational system is adopted. Mercury is not altogether abandoned in the treatment of venereal disorders, but it is no longer looked on as a specific, or pushed to the fearful extent which it formerly was. The treatment of venereal disease resolves itself into two heads, viz., the local and constitutional. We shall first consider the local treatment of the various primary sores which we have described, and then consider the constitutional treatment.

Treatment. Whatever may be the appearance of the primary sore, it is always advisable, when it is noticed early, to change the nature of the diseased action by touching the sore either with lunar caustic, or pure nitric acid; by doing so we may destroy the virus before it is absorbed into the system, and by thus altering the action of the sore, we will expedite the cure. Unfortunately, however, the patients seldom apply until the sores have been of too long duration to accomplish the above design; but even then the lunar caustic is one of the best applications at first. In the simple forms of primary sores, the ulcer is to be treated on the general principles applicable to other ulcers unconnected with a specific cause; slightly stimulating lotions will in general be found the best, applications gradually encreasing their strength, or changing the lotion from time to time, if it seems to lose its effect on the sore. The best lotions are the black wash, the red lotion, (see *Pharmacopeia*,) or solutions of the sulphate of copper, or of lunar caustic, and the penis and testicles should be kept suspended by means of a couple of handkerchiefs, for perfect rest of the

parts is absolutely necessary. The bowels should be kept gently open, and the patient's diet should be light and unstimulating; mercurial medicines are objectionable in the cases of simple sores, except merely in the form of alterative laxatives, and then they should be followed by some saline medicine, and the compound decoction of sarsaparilla with nitric acid may be given to the extent of two English pints twice a day. The constitutional symptoms following the simple primary sore during the febrile stage which precedes the eruption, are to be treated by moderate depletion if necessary, that is to say, if the pains and fever run high, and by antimonial medicines, saline purgatives, and the warm bath. When the eruption has come fully out and the fever subsided, all that is necessary is to attend to the state of the general health, and to give the decoction of sarsaparilla or preparations of iodine. Mercury seems to be hurtful in these papular and pustular eruptions. When in the pustular form desquamation begins, much benefit is often derived from the use of the sulphuretted bath.

The treatment of buboes in whatever form of this disease they occur, is the same as that of any other abscess, and it has already been detailed in the article on *Bubo*, in the commencement of this work.

In the phagedenic form of sores the patient requires to be kept in a well ventilated room, and he should be kept perfectly quiet, in the recumbent position; blood-letting, in the first instance, is generally useful in moderating the irritability of the sore and of the constitution; then cold water, lint covered with oiled silk, or a bread and water poultice, is the best local application to the sore. When, however, the sore assumes an ash coloured appearance, or presents a dark spot in the centre, pure nitric acid should be freely applied to the ulcerated surface, and this may be followed by a bread poultice, in about half an hour after the application of the acid; by this means we stimulate the sore to healthy action. Opiates, such as Dover's powder, are frequently of great service in allaying the general irritation, and promoting diaphoresis, especially when there is pain in the joints or bones. Mercury should be carefully avoided during the ulcerative stage, as it almost certainly aggravates both the local and constitutional symptoms; but when the ulcers are nearly healed and no fresh eruption coming out, and desquamation fairly begun, it may be given in alterative doses; as for example, a blue pill every second or third night, with advantage and without any risk. The ulcers of the throat require to be freely touched with the nitric acid, and then gargles of chloride of lime and nitro-muriatic acid and water frequently used. In the scaly form of venereal disease the judicious employment of mercury is decidedly useful; for although by using the various preparations of iodine, sarsaparilla, or nitric acid we may effect a cure without mercury, still the cure is much more rapidly and safely effected by mercurial medicines; and in exhibiting them we should watch when the mouth becomes affected, and then stop their use and commence giving the sarsaparilla, and gentle laxatives.

In the chronic affections of the bones, joints, iris, &c., the use of the warm bath, and small alterative doses of mercury, and Dover's powders, together with sarsaparilla, are usually of most service; but in many cases, where the mercury has a tendency to affect the mouth, and salivate the patient, it should be omitted, and the solution of iodine and hydriodate of potass used combined with sarsaparilla decoction. (See *Domestic Pharmacopeia.*) In cases of syphilis where mercury has been pushed far, mercurial eruptions and nodes are of frequent occurrence. In such cases, the decoction of sarsaparilla with nitric acid as a diet drink, and opiates combined with ipecacuanha or antimony, to allay the general irritability of the constitution, are the best remedies.

VENESECTION. Blood-letting by opening a vein. This is one of the most common operations in domestic surgery. The veins most usually opened are those of the arm, the neck, and the ankle, the last principally in women. In whatever part of the body, however, venesection is performed, the same general method must be practised, viz. to compress the vein by a ligature betwixt the place where the puncture is to be made and the heart. Thus, the reflux of the blood through the vein is stopped, the vessel swells, becomes conspicuous, and bleeds freely, which it would not do were the ligature not to be applied. Hence, according to the situation of that part of the body where the vein is to be opened with regard to the heart, the ligature must be applied either above or below the puncture. In the arm and ankle, where the blood flows upwards to the heart, the ligature must be applied above the intended place of the puncture; but in the jugular vein, or any vein in the head where the blood descends, it must be tied below it. All the apparatus necessary for blood-letting, are a bandage or fillet of cotton tape or silk, about a yard and a half in length and near two inches broad, a common ribbon or garter being frequently made use of; a compress, which is easily made from four or five folds of linen rag about two inches square; it is best to have two such compresses ready; and in addition to these, a vessel to hold the blood; and a very clean, sharp, pointed lancet.

In blood-letting, it is necessary to attend to the posture in which the patient must be kept during the operation; and this will be different according to the different intentions with which

the blood is taken away. If the design is merely to empty the vessels a little, where there is plethora, or too great fullness of the vessels, we ought to be careful to prevent fainting. This object is best attained by bleeding the patient in a recumbent posture, or lying on a bed or sofa, which ought always to be chosen when great fear exists, or an aptness to faint on the loss of a small quantity of blood. But when the person is strong and vigorous, there is little occasion for this precaution, and a sitting posture is to be preferred. In some cases, however, particularly in strangulated hernia, or rupture, or in luxations of the larger joints, it is necessary to induce fainting, that by the sudden and general collapse of the system, the parts affected may be more easily reduced. In this case the patient is to be bled in an erect posture, and the wound made large, that the blood may flow with the greater velocity.

The first step in the operation of blood-letting, as already observed, is to apply the ligature, which, in the arm, must be tied a little above the elbow. (See Plate I. fig. 1.) It is to be made so tight that the passages of the blood through all the superficial veins may be interrupted; but we must by no means tighten it to such a degree as to compress the artery, because this would effectually prevent the veins from rising at all, by depriving them of the blood which ought to make them swell. When the ligature is properly applied, the veins in the arm will be compressed and swell, and by consulting the above plate, fig. 1, the operator will easily distinguish which is most convenient to open.

In the jugular vein we cannot so conveniently apply the ligature, because there is danger of stopping the patient's breath. When any of the jugular veins are to be opened, the operator should make choice of one of the veins previous to attempting the operation; then to put a compress of linen upon the vein of the opposite side, tying it tight with a ligature under the arm pit; that is, if the operator makes choice of the right jugular vein, he must put a compress on the left one, and tie it under the right arm. Thus the reflux of blood through these veins will be checked, and they will swell as much as is necessary without any of that disagreeable strangulation occasioned by a ligature round the neck. In operating on the jugular vein, the patient's head is to be laid on one side, and properly supported; then the operator is to press upon the vein with the thumb of the left hand, in order to make it swell, and when it becomes turgid, place the fore and middle fingers of the same hand above and below the point to be wounded. (See Plate I. fig. 3.) Then with the lancet in the right hand an incision is to be made obliquely across the integuments, from above downwards, using the lancet as a knife or scalpel; and when the vein is distinctly to be seen it is to be cut upwards, or rather in the angle shown in the Plate, fig. 3, as at the bend of the arm. Some good practical surgeons prefer pushing the lancet through the integuments and skin into the vein, till the blood begins to appear as in the arm, because it is necessary to go much deeper than in the arm, as the veins are very deeply seated, and there is not here any reason to fear the wounding of either artery or tendons; neither by the perpendicular descent of the blood through the veins, is there commonly any difficulty in stopping the flux after the pressure is removed. Whenever the blood has begun to flow, the middle fingers of the left hand are to be removed, but the thumb is to remain until the quantity required has been abstracted, and the wound neatly brought together and kept close with adhesive plaster, and this should be done as quickly and effectually as possible, as air may enter in by the wound of the vein, and there are cases on record where such an event has proved fatal. No compress or bandage other than the shirt neck is to be used, as it would check the circulation in the superficial veins of the head, an occurrence which would be dangerous.

In *operating on the arm* after the ligature has been properly applied, as already directed (see fig. 1), the next thing is the choice of the vein, which is attended with more difficulty in the arm than any where else, the danger arising from the vicinity of a nerve, tendon, or artery, the wounding of any one of which has often been attended with very serious consequences. At the part of the arm where blood is commonly drawn, there are four veins, which are accurately delineated in the figure, viz. the cephalic, on the outside, the basilic on the inside, and the median basilic and median cephalic between them, the two last being sent off from a trunk called mediana major. This trunk runs up the fore-arm between the cephalic and basilic, dividing into two large branches, one of which runs into each of the others, from which they take their names of median basilic and median cephalic. Of these, the median cephalic is the safest, and next to it the median basilic. The basilic is dangerous, on account of its lying directly above the artery, (which may be felt by its *pulsation*) and tendons of the biceps muscle. The cephalic is surrounded by the branches of the cutaneous nerve. In general, we are to make choice of that vein which rolls least under the skin, and by reason of its firmness, to have some connection with the subjacent parts. Though lying at a considerable depth, veins of this kind are more easily opened than those which roll much, by reason of their having no connection with the cellular texture. The difficulty attendant on the opening of loose veins may in a great measure be overcome by the steadiness of the operator; and by stroking up

the vein with the ligature before he ties it on, the rolling will be prevented. The operator then puts the thumb of his left hand upon the vein about an inch and a half below the place where he intends to make the orifice; but if the vein rolls much, the distance must be less, even to half an inch. He then takes the lancet, bent to a somewhat acute angle, between the thumb and fore-finger of the right hand, leaving one half of the blade uncovered; and resting the hand upon the other three fingers, he is to enter the lancet in an oblique direction, as in the figure, pushing the point through the skin, cellular substance, and vein, till the blood appears on each side of the lancet. Then raising up the point in as straight a line as possible, he makes the wound in the skin and vein quite equal, as they ought to be. The thumb is withdrawn to allow the blood to run freely, and the arm should be kept in the same position while the blood flows. It is sometimes of service to grasp a round substance in the hand, a custom now, however, nearly out of fashion. If the position of the arm is shifted, the skin will be apt to slip over the orifice in the vein, and greatly impede, if not altogether stop, the flow of blood, which would insinuate itself below the arm and among the cellular substance, and prove a great inconvenience. When the required quantity of blood has been abstracted, the ligature should be immediately untied, which is easily done, being always tied with a single slip knot. The compresses, formed as already described, should be now applied, first bringing the edges of the wound accurately together, and the compresses secured by the ligature, or other bandage, put round the arm, crossing immediately above the compress in the form of the figure 8, as shown in the plate. (See Plate I. fig. 2.) Sometimes, however, the blood will continue to flow with great rapidity after the ligature has been removed and the compresses applied, especially where the orifice is large and the circulation very vigorous. The vein in this case must be compressed both above and below the orifice with the fore and middle finger of the operator's left hand, the arm washed clean from the blood, and the sides of the orifice laid close together; any blood which may remain in the wound to be pressed out by working the vein a little between the fore-fingers of both hands, and a fresh and larger compress applied and firmly kept down by the bandage applied, in the same form as already directed. Where a sharp, clean lancet has been employed, and these directions attended to, the wound will heal readily by the first intention, that is, by the adhesion of the parts to each other without any suppuration.

Phlebotomy, another technical term for blood-letting, is *performed in the feet*, in the same manner as in the other parts; but the blood runs more slowly than from the arm, and it has therefore been customary to immerse the feet and ankles in warm water after performing the operation. The ligature is to be applied a little above the ankle joint, in consequence of which the veins both on the inside and outside will appear very conspicuous, being covered only with skin, and pressed by the ligature against the bones. Indeed, where we intend to let blood, the ligature is to be applied to that part where the veins are most exposed and can be most easily compressed against the bones or subjacent parts. The operation of blood-letting at the ankle or on the foot is not so frequently employed as formerly; but we have pointed out, on the figure referred to, the places where an incision may be made, and it may be made in any conspicuous vein. In these veins the circulation is generally so weak as only to require the application of a slip of adhesive plaster to the wound, after bringing the edges accurately together.

The operation of blood-letting is occasionally performed at the wrist, or on the back of the hand, when there is a difficulty of obtaining blood at the bend of the arm, by the veins being so deeply situated, and the patient of a full plethoric habit. In this case, the ligature may be applied about an inch above the wrist, and if the veins are not distinctly seen, the hand may be dipped in warm water; the most prominent vein should be opened, and the operation performed in other respects as at the elbow joint.

When a vein in the scrotum is opened, it is requisite that the patient stand upright, and the part be immersed in warm water. Blood-letting below the tongue is seldom employed, and operations in such cases, when required, should always be intrusted to professional men.

VENISON. The flesh of the deer. Venison is less nutritive than beef, but is more easily digested. Indeed venison, if kept for some time, is one of the most easily digested articles of animal food, and well fitted for dyspeptics. When used by such persons, it should be plain roasted, and rather underdone; and they should eat it without any sweet condiments, using merely table salt. It should be kept for some short time, to render it tender, but not so long as to begin to decay, as is often done.

VENOMOUS ANIMALS. The venomous serpents form about one-fifth or one-sixth of the whole class of snakes, and are distinguished especially by the two long poison fangs, which take the place of the first or exterior of the three rows of teeth, found in the upper jaw of the innocuous species. At the root of these fangs is situated a small sack, containing the venom, and opening into the fangs, through which it is ejected by the pressure caused by the action of biting. The extraction of the

fangs, or the removal of the sack, destroys their power of inflicting an envenomed wound. The symptoms resulting from the bite of all venomous snakes are nearly the same. Pain in the bitten part, extending towards the heart, stupor, cold sweats, pallor, and lividity of countenance, and gangrene of the bitten part, are indications of such venomous bites. The best manner of treatment is to put a ligature upon the limb that has been bitten, between the wound and the trunk of the body, and apply a wine glass, from which the air has been exhausted, by burning a little spirit within it, as a cupping glass over the wound; or to cause the wound to be sucked by a person whose lips and tongue are not chapped, until professional aid can be procured. Animal poisons of this description, are innocuous when taken into the stomach, although their action is so powerful, and often fatal, when they are introduced into the system by a wound, or any other method of innoculation. If the lips or the tongue of the person who sucks the poisoned wound be chapped, the system is innoculated in the same manner as if it were inserted by a lancet, or a bite under the skin. The stings of bees, wasps, and other insects, are sometimes, though seldom, fatal; but the pain they excite is almost insupportable in some habits. The sting of a bee or wasp consists of a hollow tube, at the root of which is a bag full of a sharp, penetrating juice, which is injected, in the act of stinging, into the puncture made by the insect. This tube is, in fact, but a sheath, containing two little spears, by which the puncture is made. The part affected should be bathed with the tepid spirit of Mindererus, or water of the acetate of ammonia. See *Hydrophobia*.

VENTILATION. We are all thoroughly aware of the necessity of breathing; and the agreeable freshness and reviving influence of the pure morning air must convince us that the breathing a pure atmosphere is conducive to health; yet we as carefully exclude the air from our houses as if its approach were noxious. Intending to shut out the inclemency of the weather only, in our care to guard ourselves from the external air, we hinder that renewal of the atmosphere which is necessary to prevent its becoming stagnant, and unfit to support animal life. Few persons are aware how very necessary a thorough ventilation is to the preservation of health. We preserve life without food for a considerable time; but keep us without air for a very few minutes, and we cease to exist. It is not enough that we have *air;* we must have *fresh air;* for the principle by which life is supported is taken from the air during the act of breathing. One-fourth only of the atmosphere is capable of supporting life; the remainder serves to dilute the pure vital air, and render it more fit to be respired. A full grown man takes into his lungs nearly a pint of air each time he breathes; and when at rest, he makes about twenty inspirations in a minute. In the lungs, by an appropriate apparatus, the air is exposed to the action of the blood, which changes its purer part, the vital air (oxygen gas), into fixed air (carbonic acid gas), which is not only unfit to support animal life, but is absolutely destructive of it. An admirable provision of the great Author of nature is here visible, to prevent this exhausted and now poisonous air from being breathed a second time: while in the lungs, the air receives so much heat as makes it specifically lighter than the pure atmosphere; it consequently rises above our heads during the short pause between throwing out the breath and drawing it in again, and thus secures to us a pure draught. By the care we take to shut out the external air from our houses, we prevent the escape of the deteriorated air, and condemn ourselves to breathe, again and again, the same contaminated, unrefreshing atmosphere. Who, that has ever felt the refreshing effects of the morning air, can wonder at the lassitude and disease that follow the continued breathing of the pestiferous atmosphere of crowded or ill ventilated apartments! It is only necessary to observe the countenances of those who inhabit close rooms and houses, the squalid hue of their skins, their sunken eyes, and their languid movements, to be sensible of the bad effects of shutting out the external air.

The history of the prison, since called the Black Hole, at Calcutta, furnishes a shocking example in illustration of this, in which, of 146 military men confined for a few hours without ventilation, only twenty-three survived the short confinement. The distress, often followed by serious illness, which many people feel in crowded and unventilated churches, courts of justice, theatres, and other meeting-places, furnishes other examples; and but that the meetings are usually of short duration, and that persons when they feel about to faint escape from them, and thereby warn those remaining to open windows and doors, fatal occurrences even in those situations would not be unfrequent. Where the invisible poison is less concentrated, but of longer continued operation, as formerly in crowded and ill-ventilated ships and prisons, fevers of the worst description are the consequence, called gaol and ship fevers, and where this poison exists in a still weaker degree, as not long ago in many of our manufactories, milliners' work-rooms, &c., the health of the inmates was gradually destroyed, while the true cause remained unsuspected. And within a few years, since the establishment of infant schools, there have been instances of the children being collected at first in small rooms, where no fit provision had been made for ventilation,

and where sickness broke out among them from the same cause.

The people working in cotton and other factories are observed generally soon to become pallid and sickly, and then scrofulous in various degrees, and many of them at last to sink into early graves; and this happens chiefly because they and their employers are ignorant of the fatal influence on their health of spending so much of their time in close apartments, of which the ventilation is either left to chance, or is even studiously prevented to preserve the warmth useful to the process of manufacturing. These work people are crowded together, constantly breathing a polluted, noxious air, nearly as noxious to them as to the trouts of a mountain stream is the water of a stagnant pool. Recently, however, wheels or fanners for ventilating have been introduced into many of the factories, by which the air is drawn out or changed with any desired rapidity, while fresh air, artificially warmed, is admitted in its stead. In places where these means have been adopted, the factory operatives are stouter and healthier than elsewhere.

Besides the contamination of the air from being breathed, there are other matters which tend to depreciate its purity; these are the effluvia constantly passing off from the surface of animal bodies, and the combustion of candles and other burning substances. On going into a bed-room in a morning, soon after the occupant has left his bed, though he be in perfect health and habitually cleanly in his person, the sense of smelling never fails to be offended with the odour of animal effluvia with which the atmosphere is charged. There is another case, perhaps still more striking, when a person, fresh from the morning air enters a coach in which several persons have been close-stowed during a long night. He who has once made the experiment, will never voluntarily repeat it. The simple expedient of keeping down both windows but a single half inch would prevent many of the colds, and even fevers, which this injurious mode of travelling often produces. If, under such circumstances, the air is vitiated, how much more injuriously must its quality be depreciated when several persons are confined to one room, where there is an utter neglect of cleanliness; in which cooking, washing, and all other domestic affairs, are necessarily performed; where the windows are immovable, and the door is never opened but while some one is passing through it! It may be taken as a wholesome general rule, that whatever produces a disagreeable impression on the sense of smelling is unfavourable to health. That sense was doubtless intended to guard us against the dangers to which we are liable from vitiation of the atmosphere. If we have, by the same means, a high sense of gratification from other objects, it ought to excite our admiration of the beneficence of the Deity in thus making our senses serve the double purpose of affording us pleasure and security; for the latter end might just as effectually have been answered by our being only susceptible of painful impressions. To keep the atmosphere of our houses free from contamination, it is not sufficient that we secure a frequent renewal of the air: all matters which can injure its purity must be carefully removed. Flowers in water, and living plants in pots, greatly injure the purity of the air during the night, by giving out large quantities of an air (carbonic acid) similar to that which is separated from the lungs by breathing, which, as before stated, is highly noxious. On this account, they should never be kept in bed-rooms. There are instances of persons, who have incautiously gone to sleep in a close room in which there has been a large, growing plant, having been found dead in the morning, as effectually suffocated as if there had been a charcoal stove in the room.

A constant renewal of the air is absolutely necessary to its purity; for, in all situations, it is suffering either by its vital part being absorbed, or by impure vapours being disengaged and dispersed through it. Ventilation, therefore, resolves itself into the securing a constant supply of fresh air. In the construction of houses, this great object has been too generally overlooked, when, by a little contrivance in the arrangement of windows and doors, a current of air might, at any time, be made to pervade every room of a house of any dimensions. Rooms cannot be well ventilated that have no outlet for the air; for this reason, there should be a chimney to every apartment. The windows should be capable of being opened; and they should, if possible, be situated on the side of the room opposite to, and farthest from, the fire-place, that the air may traverse the whole space of the apartment in its way to the chimney. Fire-places in bed-rooms should not be stopped up with chimney-boards. The windows should be thrown open for some hours every day, to carry off the animal effluvia which are necessarily separating from the bed-clothes, and which should be assisted in their escape by the bed being shaken up, and the clothes spread abroad, in which state they should remain as long as possible. This is the reverse of the usual practice of making the bed, as it is called, in the morning, and tucking it up close, as if with the determination of preventing any purification from taking place. Attention to this direction, with regard to airing the bed-clothes and bed, after being slept in, is of the greatest importance to persons of weak health. Instances have been known in which restlessness, and an inability to find refreshment from sleep, would come on in such individuals, when the linen of

their beds had been unchanged for eight or ten days. In one case, of a gentleman of a very irritable habit, who suffered from excessive perspiration during the night, and who had taken much medicine without relief, he observed that, for two or three nights after he had fresh sheets put upon his bed, he had no sweating; and that, after that time, he never woke but that he was literally swimming, and that the sweats seemed to increase with the length of time he slept in the same sheets.

Various means are had recourse to at times, with the intention of correcting disagreeable smells, and of purifying the air of sick-rooms. Diffusing the vapour of vinegar through the air, by plunging a hot poker into a vessel containing it, burning aromatic vegetables, smoking tobacco, and exploding gunpowder, are the means usually employed. All these are useless. The explosion of gunpowder may, indeed, do something, by displacing the air within the reach of its influence; but, then, unfortunately, an air is produced, by its combustion, that is as offensive, and equally unfit to support life as any air it can be used to remove. These expedients only serve to disguise the really offensive condition of the atmosphere. The best means of purifying the air of a chamber which is actually occupied by a sick person, is by changing it in such a manner that the patient shall not be directly exposed to the draughts or currents. Chemistry, however, has furnished the means of purifying the air of chambers in which persons have been confined with contagious diseases, or in which bad air is generated in other ways, so as to destroy the noxious or offensive power of the effluvia generated in such situations, and thus of preventing its injurious influence. No fumigation will be of any avail in purifying stagnant air, or air that has been breathed till it has been deprived of its vital part: such air must be driven out, when its place should be immediately supplied by the fresh, pure atmosphere. The readiest means of changing the air of an apartment is by lighting a fire in it, and then throwing open the door and windows: this will set the air in motion, by establishing a current up the chimney. The air which has been altered by being breathed is essential to vegetable life; and plants, aided by the rays of the sun, have the power to absorb it, while they themselves at the same time give out pure vital air. This process, going on by day, the reverse of that described before as taking place during the night, is continually in operation, so that the purification of the atmosphere can only be prevented by its being preserved in a stagnant state.

VENTRICLE. A name given to some of the cavities of the internal organs of the human body. Thus we speak of the ventricles of the heart, and the ventricles of the brain, and of the larynx.

VERATRINE; a white, inodorous substance, very sharp to the taste, without any bitterness, found in the seed of the *veratrum sabatilla*, the *V. album*, or white hellebore, and in the bulbs of the *colchicum autumnale*, or meadow saffron. It fuses at 122°, becoming a white mass, like wax. At a higher degree of temperature, it decomposes, and affords all the products of vegeto-animal substances. It is soluble in ether and alcohol, wholly insoluble in cold water: boiling water scarcely dissolves the one thousandth part; yet this small quantity communicates to it a very sensible sharpness of taste. In a degree, it possesses alkaline properties, changes litmus paper, reddened by an acid, blue, and saturates the acids, with which it forms uncrystallizable salts. Concentrated nitric acid decomposes it without giving it a red colour. According to MM. Pelletier and Dumas, it consists of

Carbon,	66·75
Nitrogen,	5·04
Hydrogen,	8·54
Oxygen,	19·60

It exercises the same action upon the animal economy as the hellebore, but with much greater energy.

VERDIGRIS. An impure acetate of copper, being a mixture of the acetates and the carbonates of copper, and the hydrated oxide of copper. The best varieties approximate to the following composition:—

	French.	English.
Acetic acid,	29·3	29·62
Peroxide of copper,	43·5	44·25
Water,	25·2	25·51
Impurity,	2·0	0·62

VERTEBRÆ. The name of the little bones which compose the spine. They are short, thick, angular, twenty-four in number, placed one above the other. Each vertebra has commonly seven processes. The first of these is the *spinous* process, which is placed at the back part of the vertebra, and gives the name of *spine* to the whole of this bony canal. Two others are called *transverse* processes, from their situation with respect to the spine, and are placed on each side of the spinous process. The four others, which are called *oblique* processes, are much smaller than the other three. There are two of these on the upper, and two on the lower part of each vertebra, rising from near the basis of the transverse processes. They are sometimes called *articular* processes, because the two superior processes of one vertebra are articulated with the two inferior processes of the vertebra above it; and they are called *oblique* processes, from their situation with respect to the processes with which they are articulated. These oblique processes are articulated to each other by a species of ginglymus, and each process is covered at its articulation with cartilage. There is in every vertebra a hole large enough to admit a finger. These

holes correspond with each other, and form a long bony conduit, for the lodgment of the spinal marrow. Besides this great hole, there are four notches on each side of every vertebra, between the oblique processes and the body of the vertebra. Two of these notches are at the upper, and two at the lower part of the bone. Each of the inferior notches, meeting with one of the superior notches of the vertebra below it, forms a foramen; whilst the superior notches do the same with the inferior notches of the vertebra above it. These four foramina form passages for blood-vessels, and for the nerves that pass out of the spine. The vertebræ are united together by means of a fibro-cartilaginous substance, compressible like cork, which forms a kind of partition between them. The change which takes place in these intervertebral cartilages (as they are usually called), in advanced life, occasions the decrease in stature, and the stooping forwards, which are usually to be observed in old people. The cartilages then become shrivelled, and consequently lose, in a great measure, their elasticity. But, besides this gradual effect of old age, these cartilages are subject to a temporary diminution, from the weight of the body in an erect posture; so that people who have been long standing, or who have carried a considerable weight, are found to be shorter than when they have been long in bed. Hence we are taller in the morning than at night. The difference in such cases depends on the age and size of the subject: in tall, young people, it is nearly an inch; but in older or shorter persons, less considerable. Besides these cartilages, there are many strong ligaments, which unite the bones of the spine to each other. Besides the uses of the vertebræ in defending the spinal marrow, and in articulating the several vertebræ, they serve to form a greater surface for the lodgment of muscles, and enable the latter to act more powerfully on the trunk, by affording them a lever of considerable length. In a part of the body that is composed of so great a number of bones, and constructed for such a variety of motion, as the spine is, luxation is more to be expected than fracture; and this is very wisely guarded against, in every direction, by the many processes that are to be found in each vertebra, and by the cartilages, ligaments, and other means of connection which we have described as uniting them together.

VERTIGO. See *Giddiness.*

VESICATIONS. Small blisters or vesicles raised on the surface of the body, by means of irritating substances, such as cantharides, mustard, or the application of boiling water to the part.

VESICATORIES. Irritating substances which produce vesication, or blisters on the skin. Vesicatories are employed in a great many diseases, where we wish to produce what is termed counter-irritation, or in other words, where we wish to determine the flow of blood towards the surface of the body, and so withdraw it from the internal parts. See *Blisters*, and *Cantharides.*

VESICLE. An elevation of the cuticle containing a thin clear watery fluid, with slightly inflamed base, such as we see in the eruption of the cow-pox, itch, and many other diseases. Pustular eruptions are distinguished from the vesicular, by the cavity on the top of the pustule containing purulent, and not watery fluid; and some medical men have doubted the cow-pox being a purely vesicular disease, from the apparent likeness between the lymph contained in the vesicle in that disease to purulent matter. Vesicles may be raised artificially by means of irritating applications to the skin; they are first caused by the effusion of lymph or serum from the vessels of the true skin raising the cuticle.

VINEGAR. This acid is found combined with potash in the juices of a great many plants; particularly the *sambucus nigra*, *galium verum*, and *rhus typhinus*. Sweat, urine, and even fresh milk, contain it. It is frequently generated in the stomachs of dyspeptic patients. Almost all dry vegetable substances, and some animal, subjected in close vessels to a red heat, yield it copiously. It is the result, likewise, of a spontaneous fermentation, to which liquid vegetable and animal matters are subject. Strong acids, as the sulphuric and nitric, develope the acetic by their action on vegetables. It was long supposed that the fermentation which forms vinegar is uniformly preceded by the vinous; but this is now known to be a mistake. Cabbages sour in water, making sour-crout; starch, also, in starch-maker's sour water; and dough itself, without any previous production of wine.

The varieties of acetic acids known in commerce are five: 1. wine vinegar; 2. malt vinegar; 3. cider vinegar; 4. sugar vinegar; 5. wood vinegar. We shall describe, first, the mode of making these commercial articles, and then that of extracting the absolute acetic acid of the chemist, either from these vinegars, or directly from chemical compounds, of which it is a constituent.

The following is the French method of making vinegar: The wine destined for vinegar is mixed, in a large tun, with a quantity of wine lees; and, the whole being transferred into cloth sacks, placed within a large iron-bound vat, the liquid matter is forced through the sacks by superincumbent pressure. What passes through is put into large casks, set upright, having a small aperture in their top. In these it is exposed to the heat of the sun in summer, or to that of a stove in winter. Fermentation supervenes in a few days. If the heat should then rise too high, it is lowered by cool air, and the addition of fresh wine. In the skilful regu-

lation of the fermentative temperature consists the art of making good wine vinegar. In summer, the process is generally completed in a fortnight: in winter, double the time is requisite. The vinegar is then run off into barrels, which contain several chips of birch wood. In about a fortnight, it is found to be clarified, and is then fit for the market. It must be kept in close casks.

In Great Britain, vinegar is usually made from malt. By mashing with hot water, one hundred gallons of wort are extracted, in less than two hours, from one boll of malt. When the liquor has fallen to the temperature of 75° Fahr., four gallons of the barm of beer are added. After thirty-six hours, it is racked off into casks, which are laid on their sides, and exposed, with their bung-holes loosely covered, to the influence of the sun in summer; but in winter, they are arranged in a stove-room. In three months, this vinegar is ready for the manufacture of sugar of lead. To make vinegar for domestic use, however, the process is somewhat different. The above liquor is racked off into casks placed upright, having a false cover, pierced with holes, fixed at about a foot from their bottom. On this a considerable quantity of *rape*, or the refuse from the makers of British wine, or otherwise a quantity of low-priced raisins, is laid. The liquor is turned into another barrel every twenty-four hours, in which time it has begun to grow warm. Sometimes the vinegar is fully fermented, as above, without the rape, which is added towards the end, to communicate flavour.

Cider is the principal source of vinegar in the northern states of North America. The common family method is as follows: the vinegar barrel, in summer, is placed in the garret, or on the sunny side of a building, and in winter in a room where it does not freeze. The refuse cider, already sour, or the daily remnants of the family table, are added to some good vinegar in the barrel, or to the *mother* of vinegar, as it is called. This mother of vinegar is a white or yellowish ropy coagulum, of a mucilaginous appearance, which is formed in the vinegar, and acts as a ferment upon cider not yet thoroughly acidified. The fermentation is often aided by putting into it a piece of dough or lean animal muscle, or by adding molasses, or the sugar which falls spontaneously from molasses. In a few weeks, the vinegar will be formed. The vinegar from sugar is made as follows: Ten pounds of sugar are added to eight gallons of water, with yeast and raisins or grape cuttings; for the sake of flavour, and perhaps to assist in the fermentation, twelve pints of bruised gooseberries, or other fruits, are added; and by a process similar to that for cider, a good vinegar is produced in the course of the summer. Vinegar obtained by the preceding method has more or less of a brown colour, and a peculiar, but rather grateful smell. By distillation in glass vessels, the colouring matter, which resides in a mucilage, is separated; but the fragrant odour is generally replaced by an empyreumatic one. Its specific gravity varies from 1·005 to 1·015.

A crude vinegar has long been obtained from wood, for the use of the calico printers. It is sometimes known under the name of *pyroligneous acid*. The following arrangement of apparatus is found to answer very well in its preparation. A series of cast iron cylinders, about four feet diameter and six feet long, are built horizontally in brick work, so that the flame of one furnace may play round about two cylinders. Both ends project a little from the brick work. One of them has a disc of cast iron well fitted and firmly bolted to it, from the centre of which disc an iron tube, about six inches in diameter, proceeds and enters at a right angle, the main tube of refrigeration. The diameter of this tube may be from nine to fourteen inches, according to the number of cylinders. The other end of the cylinder is called the mouth of the retort. This is closed by a disc of iron smeared round its edge with clay lute, and secured in its place by wedges. The charge of wood for such a cylinder is about 800 pounds. The hard woods, oak, ash, birch, and beech are alone used. The heat is kept up during the day time, and the furnace is allowed to cool during the night. Next morning the door is opened, the charcoal removed, and a new charge of wood is introduced. The average product of crude vinegar or pyroligneous acid is thirty-five gallons. It is much contaminated with tar, is of a deep brown colour, and has a specific gravity of 1·025. Its total weight is therefore about 300 pounds. But the residuary charcoal is found to weigh no more than one-fifth of the wood employed. Hence, nearly one half of the ponderable matter of wood is dissipated in incondensable gases. The crude acid is rectified by a second distillation, in a copper still, in a body of which about two gallons of viscid tarry matter are left from every hundred. After this treatment, it presents the appearance of a transparent, brown vinegar, having a considerable empyreumatic smell, and a specific gravity of 1·013. Its acid powers are superior to those of the best household vinegar, in the proportion of three to two. By re-distillation, saturation with quick-lime, evaporation of the liquid acetate to dryness, and gentle torrefaction, the empyreumatic matter is so completely dissipated, that, on decomposing the calcareous salt by sulphuric acid, a pure, perfectly colourless, and grateful vinegar arises in distillation. Its strength will be proportional to the concentration of the decomposing acid.

The acetic acid of the chemist may be prepared as follows: 1. Two parts of fused acetate

of potash, with one of the strongest oil of vitriol, yield, by slow distillation from a glass retort into a refrigerated receiver, concentrated acetate acid. A small portion of sulphureous acid, which contaminates it, may be removed by re-distillation from a little acetate of lead. 2. Or four parts of good sugar of lead, with one part of sulphuric acid, treated in the same way, afford a slightly weaker acetic acid. Or, without distillation, if one hundred parts of well dried acetate of lime be cautiously added to sixty parts of strong sulphuric acid, diluted with five parts of water, and digested for twenty-four hours, and strained, a good acetic acid, sufficiently strong for every ordinary purpose, will be obtained. Acetic acid is composed of

Carbon,	46·83
Hydrogen,	6·33
Oxygen,	46·82

Acetic acid dissolves resins, gum-resins, camphor, and essential oils. Its odour is employed in medicine to relieve nervous headache, fainting fits, or sickness occasioned by crowded rooms. In a slightly dilute state, its application has been found to check hemorrhage from the nostrils. Its anti-contagious powers are now little trusted to. It is very largely used in calico printing. Moderately rectified pyroligneous acid is much employed for the preservation of animal food. Sulphuric acid is sometimes fraudulently mixed with acetic acid and common vinegar, to increase their acidity. This adulteration may be detected by the addition of a little chalk. With pure vinegar, the lime forms a limpid solution, but with sulphuric acid, a white insoluble gypsum. Muriate of barytes is a still nicer test. British fermented vinegars are allowed by law to contain a little sulphuric acid; but the quantity is frequently exceeded. Copper is discovered in vinegars by supersaturating them with ammonia, when a fine blue colour is produced; and lead, by sulphate of soda, hydrosulphurets, and sulphureted hydrogen. None of these should produce any change on genuine vinegar. Salts consisting of the several bases, united in definite proportions to acetic acid, are called *acetates*. They are characterized by the pungent smell of vinegar, which they exhale on the affusion of sulphuric acid, and by their yielding, on distillation in a moderate red heat, a very light odorous and combustible liquid, called *pyro-caetic spirit*. They are all soluble in water; many of them so much so as to be uncrystallizable. About thirty different acetates have been formed, of which only a very few have been applied to the uses of life.

VIOLETS, OR SWEET VIOLETS, sometimes called the MARCH VIOLET. The *viola odorata*. This beautiful little perennial plant is found wild in many parts of the three kingdoms, especially in England and Ireland; but is cultivated, both for its beauty, its odour, and for medicinal and chemical purposes. Its flowers are blue, and when rubbed on paper their juice is valued as a delicate test of the presence of uncombined acids or alkalies, the former changing its blue to a red, and the latter to a green.

They impart their colour to water, but not to spirit. A syrup made from the infusion has long had a place in the shops, especially in England, for it is seldom employed in Scotland.

Syrup of Violets.

The recent flowers of violets, half a pound.
Boiling water, two pounds.
Refined sugar, thirty ounces.
Macerate in a covered vessel for twenty-four hours, strain without expression through linen, and add the sugar so as to form a syrup.

This syrup is very gently laxative, and is seldom used alone, but in combination with the oil of sweet almonds, or olive oil. When taken by itself, the dose for an infant is from one to two tea-spoonfuls. It is chiefly used, however, to impart a blue colour to mixtures, and as a test of the presence of acids and alkalies.

The emanations from a large quantity of violet flowers has produced apoplexy. The flowers taken in substance, in doses of one or two drams, act as laxatives, and the seeds possess similar properties.

The root, in doses of from half a dram to a dram, is an emetic and purgative, and an excellent substitute for ipecacuanha or hippo. Boullay has found in the roots, leaves, flowers, and seeds an alkaline substance called violine, agreeing very closely in its physical, chemical, and medical properties, with emetine. This is likely to prove a valuable discovery, as emetine is very expensive, and violets may be had in any quantity at a moderate price. The odorous principle has not yet been obtained in a separate state.

Our good friends the ladies will, we hope, feel grateful for the following hint. By digesting violet flowers in olive oil, the latter dissolves the odorous matter, and acquires the smell of violets; and this preparation is what perfumers sell at a high price, as the *oil of violets*, or their *huile de violette*, as celebrated, and certainly as good, if not better, than the Macassar, and other advertised hair oils. A young lady will improve her health, and save her money, by cultivating a small border or bed of sweet violets, and infusing the flowers in oil.

There is another popular preparation sold under the name of *esprit de violette*. It is nothing more than an infusion or tincture of the rhizema, or root, of the Florentine orris, sliced down in rectified spirit, or very fine brandy. It has the odour of violets, and is used both as a perfume and cordial. One ounce of the root to a pint of the rectified spirit is the regular proportion.

There is another species of violet called the

viola canina or *dog violet*. The root of the dog violet possesses the power of vomiting, and purging the bowels, with which intention a scruple of the dried root is given. Indeed, all the varieties of violets possess these properties in a greater or less degree, and may furnish medicine on an emergency, where the ordinary kinds cannot be procured. The dog violet, Dr Hooper thinks worthy the attention of the faculty, and from our own experience, we would, in many cases, prefer the root to a mixture of jalap and hippo.

VIPER, Bite of. See *Wounds, Poisoned.*

VITRIOL. See *Sulphuric Acid.*

VOICE is the body of sounds produced by the organs of respiration, especially the larynx of men or animals. It can, therefore, only be found in animals in which the system of respiration is developed, and the lungs and larynx actually exist. Many insects intentionally produce a noise by the motion of their wings, which takes the place of a voice, but cannot be called by this name. The fishes, being deprived of lungs, and breathing through gills, are dumb; but the amphibious animals, which have the lungs and larynx in an imperfect state, have, therefore, a limited voice. In birds, however, in which the lungs are so predominant, and the larynx is double, and some of which (the singing birds) have lamellæ in the bronchiæ, capable of vibration, the voice is fitted for the most varied sounds. The mammalia possess but one larynx; and with them the sound is formed by a strong expiration, whilst the ligaments of the glottis (according to the opinion of Ferrein) vibrate like the strings of an instrument, and produce various sounds, as they are more or less tense; or (according to the opinion of Dodart and Cuvier) form certain cavities, in which the tones are produced, as in wind instruments; or, perhaps, operate in both ways at the same time. But the length of the windpipe, which can be increased or shortened, and the magnitude of the lungs in proportion to the width of the glottis, also contribute much, at least to the strength of the tone. The voice, however, is more influenced by the epiglottis, by the greater or less length of the canal which extends from the glottis to the opening of the mouth, and by all the voluntary modifications which can be there given to the tone. The influence of the nerves of the voice is also to be remarked; if the nerve is cut on one side, the voice becomes weaker, and if cut on both sides, ceases entirely. The positive pole of the galvanic battery affecting the nerve produces high, the negative pole deep, hoarse tones. Liscovius, in his Theory of the Voice (in German, Leipsic, 1814), maintains that the voice is produced by the pressure of the breath through the narrow opening of the windpipe, in a similar way as the tones are produced by the mouth in whistling. According to Gottfried Weber (*Cæcilia*, vol. i. p. 92), the organ of voice, as a sounding membrane, or lamella, acts like the tongue-work in the organ. The uvula has, of course, considerable influence in producing the tones, and is subject to diseases in singers, orators, and others accustomed to great exertion of the vocal organs. The voice of men and animals is a very interesting subject of inquiry. The tones by which animals express their feelings, the sweet and powerful melodies of the small birds, the tones which convey the ideas and emotions of rational man, and furnish his noblest music, are well fitted to awaken the curiosity of the naturalist, physiologist, and philosopher.

Respecting the sounds of human language, by the various combinations of which such a variety of words is produced, we will add a few remarks. Besides the lungs, the windpipe, &c., the finely-arched roof of the mouth, and the pliability of the lips (enabling us to give a great variety of forms to the mouth, which are almost the sole means of giving their peculiar character to the different vowels), are of the greatest importance. 'The modifications of voice, easily made (says Mr Arnott, in his Elements of Physics), and easily distinguishable by the ear, and, therefore, fit elements of language, are about fifty in number; but no single language contains more than about half of them. They are divisible into two very distinct and nearly equal classes, called *vowels* and *consonants*.' The natural division of words ceases with syllables: they are one sound, and the division into vowels and consonants, ingenious and useful as it is, does not, in fact, exist to the degree which we usually take for granted, from the circumstance of considering them as totally distinct from early childhood. Consonants are, generally speaking, only the beginning or end of vowels; *i. e.* the mouth must in some way be opened to produce a vowel sound, and closed to conclude the vowel sounds; and this mode of opening or closing gives rise to that which we call a consonant. The circumstance that consonants cannot be pronounced without the aid of vowels, shows, that the strict division into vowels and consonants is one which nature has not made. Mr Arnott says: 'To explain the second class of the modifications of sound, called *consonants*, we remark, that while any continued or vowel sound is passing through the mouth, if it be interrupted, whether by a complete closure of the mouth, or only by an approximation of parts, the effect on the ear of a listener is so exceedingly different, according to the situation in the mouth where the interruption occurs, and to the manner in which it occurs, that many most distinct modifications thence arise. Thus any continued sound, as *a*, if arrested by a closure of the

mouth at the external confine or lips, is heard to terminate with the modification expressed by the letter *p*; that is, the syllable *ap* has been pronounced: but if, under similar circumstances, the closure be made at the back of the mouth, by the tongue rising against the palate, we hear the modification expressed by the letter *k*, and the syllable *ak* has been pronounced; and if the closure be made in the middle of the mouth, by the tip of the tongue rising against the roof, the sound expressed by *t* is produced, and the syllable *at* is heard; and so of others. It is to be remarked, also, that the ear is equally sensible of the peculiarities, whether the closure precedes the continued sound or follows it; that is to say, whether the syllables pronounced are *ap*, *at*, *ak*, or *pa*, *ta*, *ka*. The modifications of which we are now speaking appear, then, not to be really sounds, but only manners of beginning and ending sounds; and it is because they can thus be perceived only in connection with vocal sounds, that they are called *consonants*.' —We refer the reader to Mr Arnott's work, for further remarks on the pronunciation of the various vowels and consonants, and add here only his table of articulations, in which, if we consider the perpendicular line on the left as the opening of the mouth, and the line on the right as the back part of the mouth, the four divisions indicate the places where the letters are pronounced.

Labial.	*Palatal.*	*Guttural.*		
P	T	K		*Mute.*
B	D L	G		*Semi-mute.*
M	N	ng	on	*Semi-vowel or nasal.*
F	th S sh	ch	H	*Aspirate.*
V	th Z J	gh		*Vocal aspirate.*
pr	R	ghr		*Vibratory.*

The effect of the sexual functions on the voice is well known; but the mode in which this effect takes place is not explained. This influence is observable even in birds, which delight us with their amorous melodies at the season of pairing; in woman, whose voice acquires its metallic tone and its fulness at the age of puberty; and particularly in man, who does not possess, till that period, the 'voices' peculiar to him, the bass or tenor, and in whom the change of voice, as every one knows, is prevented by previous emasculation. But also many other causes, affecting especially the nervous system, produce considerable changes in the voice, which afford important symptoms in diseases. Thus it may be wanting altogether in a diseased state (this is called *aphonia*), or it may be changed morbidly (*paraphonia*, *cacophonia*). In the latter case, it is either too strong or too weak, too deep (*vox clangosa*, if it is at the same time too strong, and *raucitas gravis*, if it is at the same time too weak), or too high (*oxyphonia*, which again is divided into *vox cucuriens* or *rudens*, which is at the same time too strong, and *raucitas acuta*, at the same time too weak). Most of these affections appear as symptoms, but are seldom considered as a primary disease. They often enable the physician to draw conclusions respecting the true character of the disease. The entire loss of voice originates from cramp, weakness, or paralysis. If it is caused by paralysis, it is almost always a fatal symptom. If it is connected with an excitable constitution, it indicates violent congestions and approaching apoplexy; occurring after delivery, it indicates convulsions; in the croup, suffocation and mortification. An unnaturally strong voice is very common in madness. The *vox clangosa*, sounding as if the person was speaking in an empty pot, is, in dangerous diseases, a very serious symptom. The hoarseness, in which the voice is too deep, indicates great danger in bilious fever, scarlatina, consumption, and dropsy of the chest. It is not a symptom of disease when caused merely by the arrival of the age of puberty, by catarrh, or by dust which has been inspired. The *vox cucuriens*, *seu rudens*, *seu pipiens* (sounding similar to the crowing of a cock, or the braying of an ass) is pathognomic in the hooping cough and croup, and is also sometimes found in dropsy in the head and small-pox, and is a bad symptom. The *raucitas acuta* originates partly from the same causes as the *raucitas gravis*. With hysterical persons it indicates an approaching fit.

Voice, in music. A good musical voice depends chiefly upon the soundness and power of the organs of utterance and of hearing, and the necessary musical disposition, and is distinguished by clearness of intonation, ease, strength, duration, equality, harmoniousness and fulness of the sounds; whilst natural defects or diseases in those organs (for instance, narrowness of the chest, weak lungs) give rise to imperfections in the voice. As weakness of lungs necessarily affects the voice, so frequent singing developes and strengthens the lungs, which are strong enough to support it; and instruction in singing is, therefore, in a medical respect, of great importance. The rarity of consumption in most parts of Germany, compared to other countries, is ascribed by some, in a great measure, to the general instruction and frequent practice in singing. Practice in singing for several generations must undoubtedly have a decided influence in giving strength to the lungs, which may also be much promoted by gymnastic exercises that expand the chest. A fine voice requires a long, regular and strong breath. Some faults in singing, however, originate from a bad use of a good voice; as the singing through the nose, teeth, &c. A voice which has by nature the requisite properties, acquires compass and strength, correctness and pliability, by

exercise. Thorough methodical practice in singing should not, in most cases, be begun before the ninth or tenth year, though the ear ought to be early exercised. The variety of voices is as great as that of individuals. In respect to depth and height, there are four principal classes of voices: discant, alto, tenor, and bass. Discant, or soprano, moreover, is distinguished from lower, or mezzo soprano, tenor from counter-tenor, and between tenor and bass comes the proper baritono. A good bass voice generally extends from F or G, below G gamut, to C or D, above the bass-clef note; the baritono from about G gamut to F, above the bass-clef note; the tenor from C, above G gamut, to G, the treble-clef note, or A above it; the counter-tenor from E or F, above G gamut, to B or C, above the treble-clef note; the mezzo soprano from A or B, above the bass-clef note, to E or F, above the treble-clef note; and the soprano from C, above the bass-clef note, to A, B or C, in alt, and something higher. Female voices are, by nature, treble and alto; those of boys, even if they have the compass of high treble, are usually alto. When the boy arrives at the age of puberty, the alto changes into tenor or bass.

Voice is also the name given to a part assigned to a human voice or an instrument in a composition.

VOMITING. The forcible ejection of food, or any other substance, from the stomach, through the gullet and mouth.

The internal sensation which precedes vomiting is called nausea; it consists of a general uneasiness, with a feeling of dizziness in the head, and oppression at the epigastrium; the lower lip is tremulous, and saliva flows in abundance. Instantly, and involuntarily, convulsive contractions of the abdominal muscles and diaphragm succeed the feeling of nausea. These at first are not very violent, but they soon become more so, till at last the contents of the stomach surmount the resistance offered by the cardiac end of the œsophagus, and are thus forcibly ejected through the œsophagus and mouth; the same effect is produced several times in succession, the vomiting ceasing for a time, and being renewed again after a short interval.

At the instant that the matters driven from the stomach traverse the pharynx and the mouth, the glottis or upper part of the larynx is shut, and the pendulous part of the soft palate is raised, and becomes horizontal as in swallowing; nevertheless, every time that a person vomits, a certain quantity of liquid is thrown into the nostrils.

Vomiting was long believed to depend upon rapid convulsive contraction of the stomach; but it has been shown by a series of experiments, that in the process this viscus is nearly passive; and that the true agents of vomiting are the diaphragm, and the muscles composing the walls of the abdomen.

VOMITING OF BLOOD, or *Hæmatemesis*. This disease may be occasioned either by any thing taken into the stomach, which stimulates it violently, or wounds it; or it may proceed from blows, bruises, or any other cause capable of exciting great irritation, and producing determination of blood towards the stomach. It sometimes arises from the suppression of other discharges, such as stoppage of the menses, or hæmorrhoidal flux; but the most dangerous kind of bloody vomit, is where it arises from ulceration of the coats of the stomach opening into some large blood-vessel. With the exception of cases where it arises from the last mentioned cause, hæmatemesis is seldom so violent, and the loss of blood seldom so great, as to destroy the patient suddenly; but the principal danger is from the great debility induced by repeated attacks, which lay the foundation for more serious disease.

Vomiting of blood is easily distinguished from spitting of blood, by the pain, weight, and nausea which precede it, and from its being unaccompanied by cough, and by the blood being discharged in large quantities, generally of a dark colour, and often mixed with some of the other contents of the stomach.

Treatment. Vomiting of blood does not in general admit of large evacuations. When it arises in a young and plethoric person, however, or where it seems to depend on suppression of the menstrual, or any other discharge, and returns periodically, it may be useful to anticipate the disease by taking away a few ounces of blood, and at the same time to use constitutional measures to restore the suppressed discharge. When the blood vomited is florid, or the quantity of blood lost is considerable, one of the sugar of lead and opium pills, (see *Domestic Pharmacopeia*,) should be given every two hours till it ceases; or what is a safer remedy in the hands of the unprofessional, infusion of roses, or oak bark, with dilute sulphuric acid, may be exhibited; but it is not so powerful as the sugar of lead and opium. The bowels should be freely opened at first, and then kept gently open afterwards by means of some saline or oily laxative, and if there be much pain opium should be given after the bowels have been freely opened, and the patient should be kept very quiet, and the body kept cool by means of sponging with tepid vinegar and water. The diet should be light and easy of digestion, but nutritious; for the patient is generally exhausted by the loss of blood.

VULNERARY BALSAM. The popular name for the compound tincture of benzoin, which was at one time much used as an application to recent wounds. It is a highly stimulating preparation, and is useful sometimes in stopping slight bleeding, or as an application to bruised

or foul wounds; but from its stimulating properties it is altogether unfit as an application to clean incised wounds, for which the water dressing is far preferable.

W

WARM BATH. The warm bath has a peculiar tendency to bring on a state of repose, by allaying local or general irritation. The usual temperature of the water used in the warm bath is from 90 to 96 degrees of Fahrenheit's thermometer; when water of a lower temperature is used it is termed a tepid bath. The warm bath, upon the whole, is a safer remedy than the cold bath, and more peculiarly applicable to very weak and irritable constitutions, whom the shock of the cold immersion would overpower, and who have not a sufficient vigour of circulation for an adequate re-action. In cases of local inflammation connected with an inflammatory state of the body, preceded by rigors and general fever, and where the termination of the general inflammatory symptoms is the local formation of matter, experience directs the use of warm relaxing applications, rather than those which by exciting a general re-action would increase the local symptoms. Warm bathing appears to be peculiarly well adapted to relieve those complaints that seem to depend on an irregular or diminished action of any part of the alimentary canal; and the state of the skin produced by immersion in warm water seems highly favourable to the healthy action of the stomach and bowels. Another very important use of the warm bath, is in herpetic eruptions, by relaxing the skin, and rendering it more pervious, and preparing it admirably for receiving the stimulant applications of tar ointment, mercurials, and the like, that are intended to restore the healthy state of the skin. In children, general irritation seems to be more fully relieved by the warm bath than even adults, and it is more applicable to acute fevers in them, than in persons more advanced in life.

Where the warm bath produces beneficial effects it is almost always followed by a profound and gentle sleep. Dr Sanders strongly recommends the use of the warm bath in the true menorrhagia of females. In paralytic affections of particular parts, the powerful stimulus of heated water is generally allowed; and in such cases the water may be rendered still more stimulating by the addition of mustard salt or spirit of turpentine. The application of partial warm bathing, as the foot bath, in cases of febrile excitement, or of the hip bath in diseases of the urinary organs, is of the very highest service. See *Bath* and *Bathing*.

WARTS are excrescences from the skin, and are formed by induration and thickening of the cuticle, which is raised up in different forms, being sometimes pointed or granulated or fissured, sometimes flattened, and in some cases painful and irritable, and liable to bleed from the slightest friction. Young persons are frequently troubled with crops of warts on their fingers, and although in some cases, they gradually go off without the use of remedies, yet in most cases it is necessary to adopt some measures for their speedier removal. The best method, in our opinion, is to pare off the upper surface of the wart, and then apply escharotics, such as the strong aromatic vinegar, nitric acid, nitrate of silver, or caustic potass, to the raw surface, and the burnt part ought to be pared off again before applying the caustic afresh.

Warts often appear on the prepuce and glans penis as a sequel of venereal complaints; in such cases they must be destroyed as recommended above, and the constitutional remedies recommended in the venereal complaint exhibited at the same time.

WASTING. See *Tabes*, and *Tabes Mesenterica*.

WATCHFULNESS. This is a symptom common to many diseases, particularly in persons of a nervous temperament, and in infants. In some adults it is periodical, occurring at certain seasons of the year, and is generally attended with headache, heat of skin, and restlessness. In such cases where there are no symptoms of any special disease, the best remedies are attention to diet and exercise, keeping the bowels gently open, and the use of the tepid or warm bath; and in obstinate cases, opiates combined with ipecacuanha or antimony may be given to procure sleep.

In cases of watchfulness in infants, opiates should never be used if they can possibly be avoided, and there is seldom much necessity for their employment; for this diseased state in this class of patients is in general dependent on teething, disordered state of the bowels, or some other local cause of irritation, and the watchfulness will disappear under the treatment proper for the particular disease of which it is merely a symptom; whereas when opiates are exhibited, a temporary benefit is obtained often at the expense of much subsequent suffering.

WATER, or *Aqua*. This fluid is so well known, as scarcely to require any definition.

It is transparent, without colour, smell, or taste; in a very slight degree compressible; when pure, not liable to spontaneous change; liquid in the common temperature of our atmosphere, assuming the solid form at 32° Fahrenheit, and the gaseous at 212°, but returning unaltered to its liquid state on resuming any degree of heat between these points; capable of dissolving a greater number of natural bodies than any other fluid whatever, and especially those known by the name of the saline; performing the most important functions in the vegetable and animal kingdoms, and entering largely into their composition as a constituent part.

'Native water is seldom, if ever, found perfectly pure. The waters that flow within or upon the surface of the earth, contain various earthy, saline, metallic, vegetable, or animal particles, according to the substances over or through which they pass. Rain and snow waters are much purer than these, although they also contain whatever floats in the air, or has been exhaled along with the watery vapours.

'The purity of water may be known by the following marks or properties of pure water:—

'1. Pure water is lighter than water that is not pure.

'2. Pure water is more fluid than water that is not pure.

'3. It has no colour, smell, or taste.

'4. It wets more easily than the waters containing metallic and earthy salts, called hard waters, and feels softer when touched.

'5. Soap, or a solution of soap in alcohol, mixes easily and perfectly with it.

'6. It is not rendered turbid by adding to it a solution of gold in aqua regia, or a solution of silver, or of lead, or of mercury, in nitric acid, or a solution of acetate of lead in water.

'Water was, till modern times, considered as an elementary or simple substance; previous to the month of October 1776, the celebrated Macquer, assisted by Sigaud de la Fond, made an experiment by burning hydrogen gas in a bottle, without explosion, and holding a white china saucer over the flame. His intention appears to have been that of ascertaining whether any fuliginous smoke was produced; and he observes, that the saucer remained perfectly clean and white, but was moistened with perceptible drops of a clear fluid, resembling water, and which, in fact, appeared to him and his assistant to be nothing but pure water. He does not say whether any test was applied to ascertain this purity, neither does he make any remark on the fact.

'In the month of September 1777, Bucquet and Lavoisier, not being acquainted with the fact which is incidentally and concisely mentioned by Macquer, made an experiment to discover what is produced by the combustion of hydrogen. They fired five or six pints of hydrogen in an open and wide-mouthed bottle, and instantly poured two ounces of lime water through the flame, agitating the bottle during the time the combustion lasted. The result of this experiment showed that carbonic acid was not produced.

'Before the month of April 1781, Mr John Warltire, encouraged by Dr Priestley, fired a mixture of common air and hydrogen gas in a close copper vessel, and found its weight diminished. Dr Priestley, likewise, before the same period, fired a like mixture of hydrogen and oxygen gas in a close glass vessel, Mr Warltire being present. The inside of the vessel, though clean and dry before, became dewy, and was lined with a sooty substance. These experiments were afterwards repeated by Mr Cavendish and Dr Priestley; and it was found that the diminution of weight did not take place, neither was the sooty matter perceived. These circumstances, therefore, must have arisen from some imperfection in the apparatus or materials with which the former experiments were made.

'It was in the summer of the year 1781, that Mr Henry Cavendish was busied in examining what becomes of the air lost by combustion, and made those valuable experiments which were read before the Royal Society on the 15th of January, 1784. He burned 500,000 grain measures of hydrogen gas, with about two and a half times the quantity of common air, and by causing the burned air to pass through a glass tube eight feet in length, 135 grains of pure water were condensed. He also exploded a mixture of 19,500 grain measures of oxygen gas, and 37,000 of hydrogen, in a close vessel. The condensed liquor was found to contain a small portion of nitric acid, when the mixture of the air was such, that the burned air still contained a considerable proportion of oxygen. In this case it may be presumed, that some of the oxygen combines with a portion of nitrogen present.

'In the mean time, Lavoisier continued his researches, and during the winter of 1781-2, together with Gingembre, he filled a bottle of six pints with hydrogen, which being fired, and two ounces of lime-water poured in, was instantly stopped with a cork, through which a flexible tube communicating with a vessel of oxygen was passed.

'The inflammation ceased, except at the orifice of the tube through which the oxygen was pressed, where a beautiful flame appeared. The combustion continued a considerable time, during which the lime-water was agitated in the bottle. Neither this, nor the same experiment repeated with pure water, and with a weak solu-

tion of alkali instead of lime-water, afforded the information sought after, for these substances were not at all altered.

'The inference of Mr Warltire, respecting the moisture on the inside of the glass, in which Dr Priestley first fired hydrogen and common air, was, that these airs, by combustion, deposited the moisture they contained. Mr Watt, however, inferred from these experiments, that water is a compound of the burned airs, which have given out their latent heat by combustion; and communicated his sentiments to Dr Priestley in a letter dated April 26, 1783.

'It does not appear that the composition of water was known or admitted in France till the summer of 1783, when Lavoisier and De la Place, on the 24th of June, repeated the experiment of burning hydrogen and oxygen in a glass vessel over mercury, in a still greater quantity than had been burned by Mr Cavendish. The result was nearly five gros of pure water. Monge made a similar experiment at Paris nearly at the same time, or perhaps before.

'This assiduous and accurate philosopher then proceeded, in conjunction with Menonier, to pass the steam of water through a red-hot iron tube, and found that the iron was oxidized, and hydrogen disengaged; and the steam of water being passed over a variety of other combustible or oxidable substances, produced similar results, the water disappearing, and hydrogen being disengaged. These capital experiments were accounted for by Lavoisier, by supposing the water to be decomposed into its component parts, oxygen and hydrogen, the former of which unites with the ignited substance, while the latter is disengaged.

'The grand experiment of the composition of water by Fourcroy, Vauquelin, and Seguin, was begun on Wednesday, May 13th, 1790, and was finished on Friday the 22nd of the same month. The combustion was kept up 185 hours with little interruption, during which time the machine was not quitted for a moment. The experimenters alternately refreshed themselves when fatigued, by lying for a few hours on mattresses in the laboratory.

'To obtain the hydrogen, 1. Zinc was melted and rubbed into a powder in a very hot mortar. 2. This metal was dissolved in concentrated sulphuric acid diluted with seven parts of water. The air procured was made to pass through caustic alkali. To obtain the oxygen, two pounds and a half of crystallized hyperoxymuriate of potassa were distilled, and the air was transferred through caustic alkali.

'The volume of hydrogen employed was 25963·568 cubic inches, and the weight was 1039·358 grains.

'The volume of oxygen was 12570·942, and the weight was 6209·869 grains.

'The total weight of both elastic fluids was 7249·227.

'The weight of water obtained was 7244 grains, or twelve ounces, four gros, forty-five grains; the weight of water which should have been obtained, was twelve ounces, four gros, 49·227 grains.

'The deficit was 4·227 grains.

'The quantity of azotic air before the experiment was 415·256 cubic inches, and at the close of it 467. The excess after the experiment was consequently 51·744 cubic inches. This augmentation is to be attributed, the academicians think, to the small quantity of atmospheric air in the cylinders of the gasometers at the time the other airs were introduced. These additional fifty-one cubic inches could not arise from the hydrogen, for experiment showed that it contained no azotic air. Some addition of this last fluid, the experimenters think, cannot be avoided, on account of the construction of the machine.

'The water being examined, was found to be as pure as distilled water. Its specific gravity to distilled water, was as 18671 : 18670.

'The decomposition of water is most elegantly effected by electricity.

'The composition of water is best demonstrated by exploding two volumes of hydrogen and one of oxygen, in the endrometer; they disappear totally, and pure water results. A cubic inch of this liquid at 60° weighs 252·52 grains, consisting of

28·06 grains hydrogen, and
224.46 ——— oxygen.

The bulk of the former gas is 1325 cubic inches.
That of the latter is 662 ———
1987

Hence there is a condensation of nearly two thousand volumes into one; and one volume of water contains 662 volumes of oxygen. The prime equivalent of water is 1·125; composed of a prime of oxygen = 1·0 + a prime of hydrogen = 0·125; or nine parts by weight of water, consist of eight oxygen + one hydrogen.'

The simple waters are the following:

1. Distilled water. This is the lightest of all others, containing neither solid nor gaseous substances in solution, is perfectly void of taste and smell, colourless, and beautifully transparent; has a soft feel, and wets the fingers more readily than any other. It mixes uniformly with soap into a smooth opaline mixture, but may be added to a solution of soap in spirit of wine, without injuring its transparency. The clearness of distilled water is not impaired by the most delicate chemical re-agents, such as lime-water, a solution of barytes in any acid, nitrated silver, or acid of sugar. When evaporated in a silver vessel it leaves no residuum; if preserved from access of foreign matter floating in the air, it may be kept for ages unaltered in

vessels upon which it has no action, as it does not possess within itself the power of decomposition. As it freezes exactly at 32° of Fahrenheit, and boils at 212° under the atmospherical pressure of 29·8 inches, these points are made use of as the standard ones for thermometrical division; and its specific weight being always the same under the mean pressure and temperature, it is employed for the comparative standard of specific gravity.

Pure distilled water can only be procured from water, which contains no volatile matters that will rise in distillation, and continue still in union with the vapour when condensed. Many substances are volatile during distillation, but most of the gases, such as common air, carbonic acid, and the like, are incapable of uniting with water at a high temperature; other bodies, however, such as vegetable essential oil, and in general much of that which gives the peculiar odour to vegetable and animal matter, will remain in water after distillation. So the steam of many animal and vegetable decoctions has a certain flavour which distinguishes it from pure water; and the aqueous exhalation from living bodies, which is a kind of distillation, has a similar impregnation.

To obtain distilled water perfectly pure, much stress was laid by former chemists on repeating the process a great number of times; but it was found by Lavoisier, that rain water once distilled, rejecting the first and last products, was as pure a water as could be procured by any subsequent distillations.

Distilled water appears to possess a higher power than any other as a solvent of all animal and vegetable matter; and these it holds in solution, as little as possible altered from the state in which they existed in the body that yielded them. Hence the great practical utility of that kind of chemical analysis which presents the proximate constituent parts of these bodies, and which is effected particularly by the assistance of pure water. On the other hand, a saline, earthy, or otherwise impure water, will alter the texture of some of the parts, impair their solubility, produce material changes on the colouring matter, and become a less accurate analyser on account of the admixture of foreign contents.

Distilled water is seldom employed to any extent in the preparation of food, or in manufactures, on account of the trouble of procuring it in large quantities; but for preparing a great number of medicines, and in almost every one of the nicer chemical processes that are carried on in the liquid way, this water is an essential requisite. The only cases in which it has been used largely as an article of drink, have been in those important trials made of the practicability of procuring it by condensing the steam of sea water by means of a simple apparatus adapted to a ship's boiler; and these have fully shown the ease with which a large quantity of fresh water, of the purest kind, may be had at sea, at a moderate expense, whereby one of the most distressing of all wants may be relieved. There are one or two circumstances which seem to show that water, when not already loaded with foreign matter, may become a solvent for concretions in urinary passages. At least, we know that very material advantage has been derived in these cases from very pure natural springs, and hence a course of distilled water has been recommended as a fair subject of experiment.

2. Rain water, the next in purity to distilled water, is that which has undergone a natural distillation from the earth, and is condensed in the form of rain; this is a water so nearly approaching to absolute purity, as probably to be equal to distilled water for every purpose, except in the nicer chemical experiments. The foreign contents of water appear to vary according to the state of the air through which it falls.

The heterogeneous atmosphere of a smoky town will give some impregnation to rain as it passes through, and this, though it may not be at once perceptible on chemical examination, will yet render it liable to spontaneous change; and hence, rain water if long kept, especially in hot climates, acquires a strong smell, becomes full of animalculæ, and in some degree putrid. According to Margraaff, the constant foreign contents of rain water appear to be some traces of the muriatic and nitric acids; but as this water is always very soft, it is admirably adapted for dissolving soap, or for the solution of alimentary or colouring matter, and it is accordingly used largely for these purposes.

The specific gravity of rain water is so nearly the same as that of distilled water, that it requires the most delicate instruments to ascertain the difference. Rain, that falls in towns, acquires a small quantity of sulphate of lime and calcareous matter from the mortar and plaster of the houses.

3. Ice and snow water. This equals rain water in purity, and when fresh melted, contains no air, which is expelled during freezing. In cold climates and in high latitudes, thawed snow forms the constant drink of the inhabitants during winter, and the vast masses of ice which float on the Polar seas afford an abundant supply to the mariner. It is well known that in a weak brine, exposed to a moderate freezing cold, it is only the watery part that congeals, leaving the unfrozen liquor proportionably stronger of the salt. The same happens with a dilute solution of vegetable acids, with fermented liquors, and the like; and advantage is taken of this property to reduce the saline parts to a more concentrated form. Snow water has long lain under the imputation of occasioning

those strumous swellings in the neck which deform the inhabitants of many of the Alpine valleys; but this opinion is not supported by any well authenticated indisputable facts; and is rendered still more improbable, if not entirely overturned, by the frequency of the disease in Sumatra, where ice and snow are never seen, and its being quite unknown in Chili and in Thibet, though the rivers of these countries are chiefly supplied by the melting of the snow, with which the mountains are covered.

4. Spring water. Under this comprehensive class are included all waters that spring from some depth beneath the soil, and are used at the fountain head, or at least before they have run any considerable distance exposed to the air.

It is obvious that spring water will be as various in its contents as the substances that compose the soil through which it flows. When the ingredients are not such as to give any peculiar medical or sensible properties, and the water is used for common purposes, it is distinguished as a hard or soft spring, sweet or brackish, clear or turbid, and the like. Ordinary springs insensibly pass into mineral springs, as their foreign contents become more notable and uncommon, though sometimes waters have acquired great medical reputation from mere purity.

By far the greater number of springs are cold; but as they take their origin at some depth from the surface, and below the influence of the external atmosphere, their temperature is, in general, pretty uniform during every vicissitude of season, and always several degrees higher than the freezing point. Others, again, arise constantly hot, or with a temperature always exceeding the summer heat; and the warmth possessed by the water is entirely independent of that of the atmosphere, and varies little winter or summer.

One of the principal inconveniences in almost every spring water is its hardness, owing to the presence of earthy salts, which in by far the greater number of cases are only the insipid substances, chalk and selenite, which do not impair the taste of the water; whilst the air which it contains, and its grateful coolness, render it a most agreeable, and generally a perfectly innocent drink; though sometimes, in weak stomachs, it is apt to occasion an uneasy sense of weight in that organ, followed by a degree of dyspepsia. The quantity of earthy salts varies considerably, but in general it appears that the proportion of five grains of these in the pint will constitute a hard water unfit for washing with soap, and for many other purposes of household use or manufactures. The water of deep wells is always *ceteris paribus*, much harder than that of springs which overflow their channel; for much agitation and exposure to air produce a gradual deposition of the calcareous earth; and hence, spring water often incrusts to a considerable thickness the inside of any kind of tube through which it flows, as it arises from the earth. The specific gravity of these waters is also, in general, greater than that of any other kind of water, that of the sea excepted. Springs that overflow their channel, and form to themselves a limited bed, pass insensibly into the state of the stream, or river water, and become thereby altered in some of their chemical properties.

5. River water. This is, in general, much softer, and more free from earthy salts than the last, but contains less air of any kind; for, by the agitation of a long current, and in most cases a great increase of temperature, it loses common air and carbonic acid, and, with this last, much of the lime which it held in solution. The specific gravity thereby becomes less, the taste not so harsh, but less fresh and agreeable; and out of a hard spring is often made a stream of sufficient purity for the most of the purposes where a soft water is required. Some streams, however, that arise from a clean siliceous rock, and flow in a sandy or stony bed, are from the outset remarkably pure. Such are the mountain lakes and rivulets in the rocky districts of Wales, the source of the beautiful waters of the Dee, and numberless other rivers that flow through the hollow of every valley. Switzerland has long been celebrated for the purity and excellence of its waters, which pour in copious streams from the mountains, and give rise to some of the finest rivers in Europe. An excellent observer and naturalist, the illustrious Haller, speaking of the Swiss waters, says they are superior to almost any in Europe; that he had never seen water so clear except in Switzerland, and attributes it to the natural process of filtration which they undergo through the rocky soil, and to their being uncontaminated with earthy matters. Some of them never freeze in the severest winter, the cause of which is probably, as Haller conjectures, that they spring at once out of a subterraneous reservoir, so deep as to be out of the reach of frost; and during their short course, when exposed to day, they have not time to be cooled down from 53°, their original temperature, to below the freezing point.

Some river waters, however, that do not take their rise from a rocky soil, and are indeed at first considerably charged with foreign matter, during a long course, even over a rich cultivated plain, become remarkably pure as to saline contents, but often fouled with mud, and vegetable or animal exuvia, which are rather suspended than held in true solution. Such is that of the Thames, which, taken up at London at low water, is a very soft and good water, and, after rest and filtration, it holds but a very small por-

tion of any thing that could prove noxious, or impede any manufacture. It is also excellently fitted for sea store; but it here undergoes a remarkable spontaneous change. No water carried to sea becomes putrid sooner than that of the Thames. When a cask is opened, after being kept a month or two, a quantity of inflammable air escapes, and the water is so black and offensive, as scarcely to be borne. Upon racking it off, however, into large earthen vessels (oil jars are commonly used for the purpose), and exposing it to the air, it gradually deposits a quantity of black slimy mud, becomes clear as crystal, and remarkably sweet and palatable. The Seine has as high a reputation in France, and appears from accurate experiments to be a river of great purity. It might be expected that a river which has passed by a large town, and received all its impurities, and been used by numerous dyers, tanners, hatters, and the like, that crowd to its banks for the convenience of plenty of water, should thereby acquire such a foulness as to be very perceptible to chemical examination, for a considerable distance below the town; but it appears from the most accurate examination, that where the stream is at all considerable, these kinds of impurity have but little influence in permanently altering the quality of the water, especially as they are for the most part only suspended, and not truly dissolved; and therefore, mere rest, and especially filtration, will restore the water to its original purity

Probably, therefore, the most accurate chemist would find it difficult to distinguish water, taken up at London, from that procured at Hampton court, after each has been purified by simple filtration.

6. Stagnated waters. The waters that present the greatest impurities to the senses are those of stagnant pools, and low marshy countries. They are filled with the remains of animal and vegetable matter undergoing decomposition, and during that process becoming in part soluble in water, thereby affording a rich nutriment to the succession of living plants and insects, which is supplying the place of those that perish. From want of sufficient agitation in these waters, vegetation goes on undisturbed, and the surface becomes covered with conferva, and other aquatic plants; and as these standing waters are, in general, shallow, they receive the full influence of the sun, which further promotes all the changes that are going on within them. The taste is generally vapid, and destitute of that freshness and agreeable coolness which distinguish spring water. However, it should be remarked, that stagnant waters are generally soft, and many of the impurities are only suspended, and therefore separable by filtration, and perhaps the unpalatableness of this drink has caused it to be in worse credit than it deserves, on the score of salubrity. The decidedly noxious effects produced by the air of marshes and stagnant pools, have been often supposed to extend to the internal use of these waters; and often, especially in hot climates, a residence near these places has been as much condemned on the one account as on the other; and in like manner, an improvement in health has been as much attributed to a change of water as of air.

WATER-BRASH. In some cases of indigestion, a considerable quantity of clear watery fluid is discharged from the stomach by eructation. This affection is termed water-brash, and is of most frequent occurrence in old people and females, and especially in those accustomed to a farinaceous diet; it is also a frequent symptom of schirrus of the stomach. Water-brash generally attacks the patient in the early part of the day, and is usually preceded by pain and heat at the pit of the stomach, faintness, and a sense of tightness at the stomach. These uneasy feelings are increased by motion, and at last the patient is relieved by a quantity of clear watery fluid being gulped up, when the pain gradually subsides. In some cases the fluid has an acid acrid taste, but more generally is described as being insipid. In many cases of water-brash, the fluid is discharged from the stomach, without any premonitory symptoms. Water-brash being merely a symptom of stomach complaint, the treatment of course consists in regulating the diet, and exhibiting tonics, and paying attention to the state of the bowels, skin, &c., as directed in our article on stomach complaints. The symptom itself may in some cases be relieved, by giving the patient fifteen or twenty drops of the aromatic spirit of hartshorn, in a little cinnamon or peppermint water.

WATER IN THE CHEST. See *Hydrothorax*.

WATER IN THE HEAD. See *Hydrocephalus*.

WATERY GRIPES OF INFANTS. The following is the description of this disease given by the late Professor Hamilton, in his work on the diseases of children: 'It consists in a discharge of dark-coloured liquid stools like moss-water, which rapidly occasion emaciation and prostration of strength, and require very serious attention. This variety of looseness often attends teething, and is also not unfrequently occasioned by the depraved quality of the nurse's milk, or by some error in the ordinary management of the infant. The means of cure must be varied according to the causes; but in general, an ipecacuanha vomit, one or more doses of some mild laxative, with an opiate clyster at bed-time for three or four times, attention to the state of the teeth, warm clothing, a change of milk if the infant be still on the breast, and if otherwise, a due regulation of diet, are the chief

means which are found to be useful.' See *Teething.*

WAX is a concrete, unctuous-feeling substance, which partakes of the nature of fixed oil. It is secreted by bees in constructing their hives, and is also a most abundant vegetable production, entering into the composition of the pollen of flowers, covering the envelope of the plum, and of other fruits, especially of the berry of the *myrica cerifera*, and, in many instances, forming a kind of varnish to the surface of leaves. It is distinguished from fat and resinous bodies by its not readily forming soaps when treated with alkaline solutions. Common wax is always more or less coloured, and has a distinct, peculiar odour, both of which it may be deprived by exposure, in thin slices, to air, light, and moisture, or more speedily by the action of chlorine. The art of bleaching wax consists in increasing its surface; for which purpose it must be melted, with a degree of heat not sufficient to alter its quality; in a caldron so disposed that the melted wax may flow gradually through a pipe, at the bottom of the caldron, into a large wooden cylinder, that turns continually round its axis, and upon which the melted wax falls. As the surface of this cylinder is always moistened with water, the wax falling upon it does not adhere to it, but quickly becomes solid and flat, and acquires the form of ribands. The continual rotation of the cylinder carries off these ribands as fast as they are formed, and distributes them through the tub. When all the wax now to be whitened is thus formed, it is to be put upon large frames covered with linen cloth, which are supported about a foot and a half above the ground, in a situation exposed to the air, the dew, and the sun. If the weather be favourable, the colour will be changed in a few days. It is then to be remelted, and formed into ribands, and exposed to the action of the air, as before. These operations are to be repeated till the wax is rendered perfectly white, when it is cast into cakes or moulded into candles. At ordinary temperatures, wax is solid and somewhat brittle; but it may be easily cut with a knife, and the fresh surface presents a characteristic appearance, to which the name of *waxy lustre* is applied. Its specific gravity is 0·96. At 150° Fahr., it enters into fusion, and boils at a high temperature. Heated to redness in a close vessel, it suffers decomposition, yielding products very similar to those which are procured under the same circumstances from oil. It is insoluble in water, and is only dissolved in small quantities when treated with boiling ether or alcohol. It unites by the aid of heat, in every proportion, with the fixed oils, the volatile oils, and with resin. With different quantities of oil, it constitutes the simple liniment ointment and cerate of the pharmacopeia. Wax, according to some, consists of two different substances, one of which is soluble, and the other insoluble, in alcohol. To the former the name of *cerin* has been given, and to the latter that of *myricin*. One hundred parts of wax are composed of

Carbon,	80·4
Oxygen,	8·3
Hydrogen,	11·3

WEANING. The mother's milk is necessary for the new-born infant; but, after a certain period, the cutting of the teeth shows the capacity and need which the child has of receiving other sustenance. This takes place before the end of the first year. The age of twelve months, therefore, may be regarded as about the proper period for weaning. With children who are healthy, and cut their teeth early, it may take place still sooner: with weak, sickly children, it must be delayed longer, and never should be attempted during sickness or dentition. It is best for both mother and child to bring it about gradually. By so doing, the secretion of milk in the former is gradually diminished; and those complaints which arise from sudden weaning are prevented; while the child is gradually accustomed to other kinds of sustenance, and the restlessness and want of sleep, which are so troublesome in sudden weaning, are avoided. The child remains healthy and well nourished. For this, it is only necessary, that the mother should give the breast to the child less frequently, and offer it proper kinds of nourishment oftener than before. These must be, both during the weaning and some time after it, very light of digestion, and more fluid than solid: in particular, they should have no stimulating qualities, and none that will tend to create acidity, or produce other marked changes in the organic functions.

WEANING-BRASH. The symptoms of this disease are very similar to those described under *Tabes Mesenterica*. The disease generally arises in children after weaning, particularly if the child has been removed from the breast too soon, or when the child has been brought up by the hand. It begins with griping and watery purging, of a dark greenish colour, and frequent vomiting of bilious matter; the abdomen becomes hard and tumid, and the body emaciates, and frequently convulsion fits come on, which eventually destroy the patient. As regards treatment, the principal indication is change of diet, and with this view the child should be put again to the breast, and in many cases, it is advisable to give even younger milk than that of the mother, or former wet-nurse. Where this cannot be obtained, ass' milk mixed with a little whey, or warm water, or even good sweet milk well diluted with warm whey, and a little white sugar added, are the best substitutes; but on no account should animal jellies, or farinaceous food, be given, as the stomach of the infant is not able to digest them, and conse-

quently, they only give rise to an increase of the disease. As regards the medical treatment, it is nearly the same as that recommended in the *Watery Gripes of Infants.* See also *Tabes Mesenterica.*

WEED. By this term many understand the peculiar rigors or shiverings which usher in febrile and inflammatory complaints in females; and this arises from females being very liable to such attacks during the puerperal state. The proper meaning of the term, however, is ephemeral fever, or a slight form of fever, which runs through all its stages in twelve or fourteen hours. The disease commences with pain in the back and loins; with a sensation as if cold water were trickling down the back; and this state is soon succeeded by cold shiverings and headache; after these symptoms have continued for some time, the hot or feverish stage commences, and is in turn succeeded by profuse perspiration, which relieves the patient. The principal causes are exposure to cold, irregularities of diet, &c. The treatment consists in exhibiting warm drinks, such as hot gruel containing a small quantity of ipecacuanha wine, giving aperient medicines, and using the warm bath when the fever subsides. Great attention should be paid to the diet and clothing of the patient, and tonics and other strengthening remedies should be prescribed if necessary.

WEEPING EYE, or EPIPHORA. This is caused in general by some obstruction of the lachrymal sac or nasal duct, preventing the tears passing down through the duct to the nose; in which case they are constantly running over the eyelids upon the cheek; it is the first stage of the disease termed fistula lachrymalis, and its treatment will be found described under that head. See *Eye, diseases of.*

WEN. An encysted tumour. Encysted tumours are formed, in the midst of the cellular substance under the skin, of that which separates the muscles, or even of that which enters into the structure of the different organs. These tumours are comprehended in a membrane called a *cyst.* The causes of the formation are unknown, but a strongly-marked tendency to such swellings exists in particular individuals, which leads to the suspicion of constitutional causes. An encysted tumour, in its commencement, is always exceedingly small, and perfectly indolent; and it is often many years before it attains a considerable size. These swellings are usually spherical, except when this form is altered by the disposition of the surrounding parts. Practitioners are not acquainted with any effectual means of stopping the growth of them. The best mode of treatment is excision of the whole swelling.

WHEAT. Among the different kinds of grain which form the principal nutriment of the civilized world, and to the culture of which civilization is even attributed, by ancient and modern writers, the first rank is universally conceded to wheat. It is now cultivated in almost all temperate climates, throughout the greater part of Europe, in all the provinces of China, in Natolia, Syria, Persia, and the other temperate parts of Asia, in the north of Africa, and at the cape of Good Hope, in the United States, and even in the extreme southern parts of South America. The plant belongs to the family of the grasses, like the other *cerealia.* The spikelets of the flowers are sessile, and disposed on two opposite sides of an axis, the whole forming a terminal spike or ear, which, in one variety, is even branched. The culture of wheat, from time immemorial, and in different soils and climates, has produced numerous varieties, which, in some instances, have even been mistaken for distinct species. Winter wheat, sown in the spring, will ripen the following summer, though the produce of succeeding generations of spring-sown wheat is found to ripen better. White, red, awned and beardless wheat change and run into each other in different soils and climates; and even the Egyptian wheat is known to change into the single-spiked common plant. The most permanent varieties are the red and white grained, and the spring wheat, which is generally red. Wheat succeeds best when treated as a biennial, though it does not remain above one year in the ground. Provided the soil be well prepared and dry, and the grain sown in time, the plants do not suffer from the greatest cold, especially if the ground be covered with snow. Animal substances are the best manure for wheat, as containing much gluten, a substance found in a greater proportion in this grain than in any other; and next in importance is lime, as tending to the same effect by chemical combinations. Wheat yields a greater proportion of flour than any other grain, and is also more nutritive. Gluten is so essential an ingredient in bread, that fermentation cannot go on without it; hence its inferiority in wet seasons, and when the wheat is blighted or ill ripened; and hence the advantage of having a stock of old grain. Wheat starch is made by steeping it, and afterwards beating it in hempen bags. The mucilage, being thus mixed with the water, produces the acetous fermentation, and the weak acid thus formed renders the mucilage white. After settling, the precipitate is repeatedly washed, and then put in square cakes for drying. The straw of wheat, from dry, chalky lands, is manufactured into hats. Leghorn hats are made from a bearded variety of wheat, not unlike rye, raised on poor, sandy soils, on the banks of the Arno, between Leghorn and Florence, expressly for this manufacture. It does not grow above eighteen inches in length, is pulled green, and bleached, like flax, on the gravelly bed of the river. The

straws are not split, which renders the plait tougher and more durable. We are ignorant of the country whence this valuable grain was first derived; but it was very early cultivated in Sicily.—Spelt (*T. Spelta*) appears to be a distinct species, and more hardy than common wheat. It has a stout straw, almost solid, with strong spikes, and chaff adhering firmly to the grain. The grain is light, yields but little flour, and makes but indifferent bread. It is raised in Switzerland, in elevated situations, where common wheat would not ripen; and also in Bavaria and other parts of Germany.

WHEY. The fluid part of milk, which remains after the curd has been separated. Whey has a pleasant taste, and contains a considerable quantity of a sweetish substance called *sugar of milk;* hence it is frequently used as a drink; and from its nutritious quality it is frequently prescribed for children and delicate people.

WHISKEY. The name given to a well known alcoholic fluid distilled from malt. The nature of this spirit is so well known, that it would be out of place to enter on its description here; its effects on the animal economy are similar to those produced by other alcoholic or spirituous stimuli. For much curious and interesting information regarding the history and manufacture of this national potation, we would refer our readers to the supplement of the Popular Encyclopedia.

WHITE-ASH. The white-ash, or its leaves, had long been deemed a kind of poison to the rattle-snake, or at least capable of producing such powerful sedative effects on that venomous reptile, as to render it harmless and easily taken and destroyed; and every settler in America, or other parts where this venomous and deadly stinged serpent abounds, should be made acquainted with the facts, as it is more than likely that the same tree may have the same influence on other poisonous reptiles.

The following facts are recorded in that truly respectable American periodical, Silliman's Journal of Science, and were communicated by judge Samuel Woodroff. This gentleman and two friends were out hunting, when they discovered a rattle-snake, which it had appeared had left his den in the rocks beneath where the party were on watch; and was advancing across a smooth narrow sand-beach towards the water. It occurred to me (says the narrator) that an opportunity now offered to try the virtue of the white-ash leaves; and by the aid of my hunting knife procured a small ash sapling eight or ten feet in length; and with a view to make the experiment more satisfactory, I cut another sapling of the sugar maple; and with these wands returned to the scene of action. In order to cut off the retreat to his den, I approached the snake in his rear. As soon as I came within seven or eight feet of him, he quickly threw his body into a coil; elevated his head eight or ten inches; and brandishing his tongue 'gave note of preparation' for combat. I first presented him with the white-ash, placing the leaves upon his body. He instantly dropped his head to the ground unfolded; his tail rolled over upon his back, he writhed and twisted his whole body into every form but that of a coil, and he appeared to be in great anguish. Satisfied with the trial thus made, I laid by the white-ash. The rattle-snake immediately righted, and placed himself in the same menacing attitude as before described. I now presented the sugar maple. He lanced in a moment, striking his head into a tuft of the leaves with all the malice of the under fiends; and the next moment coiled and lanced again, darting his whole length at each effort with the swiftness of an arrow.

After presenting this several times, I again changed his fare and offered him the white-ash. He immediately disused his perk, stretched himself on his back in the same manner as at the first application. It was then proposed to try what effect might be produced upon his temper and courage, by a little flogging with the white-ash. This was administered, but instead of arousing him to resentment it served only to increase his troubles. As the flogging grew more severe, the snake frequently struck his head into the sand as far as he could thurst it, seeming desirous to bore his way into the earth; and rid himself of his unwelcome visitors.

Being now convinced that the experiment was a satisfactory one, and fairly conducted on both sides, we deemed it unnecessary to take his life, after he had contributed so much to gratify our curiosity, and so we took leave of the rattle-snake with feelings as friendly at least as those with which we commenced our acquaintance with him; and left him to return at leisure to his den. We consider this a truly valuable article of information, and we hope it will prove so to those for whose use it is intended. The various species of ash have been long known, and celebrated for particular virtues; our own mountain ash, or roan-tree, was long considered a preservative against witchcraft.

WHITE SWELLING, or HYDARTHRUS. Systematic writers have generally distinguished this terrible disease into two kinds, namely, rheumatic and scrofulous. The last species of the disease they also distinguish into such tumours as primarily affect the bones, and then the ligaments and soft parts; and into other cases, in which the ligaments and soft parts become diseased before there is any morbid affection of the bones. The knee, ankle, wrist and elbow are the joints most subject to white swellings. The pain is sometimes vehement from the very first; in other instances, there is hardly the least pain in the beginning

of the disease. Sometimes the pain continues without interruption; sometimes there are intermissions; and, in other instances, the pain recurs at regular times, so as to have been called, by some writers, periodical. At the commencement of the disease, in the majority of instances, the swelling is very inconsiderable, or there is even no visible enlargement whatever. In the little depressions naturally situated on each side of the patella, a fulness first shows itself, and gradually spreads all over the affected joint. The patient, unable to bear the weight of his body on the disordered joint, in consequence of the great increase of pain thus created, gets into the habit of only touching the ground with his toes; and the knee, being generally kept a little bent, in this manner soon loses the capability of becoming extended again. When white swellings have lasted a while, the knee is almost always found in a permanent state of flexion. In scrofulous cases of this kind, pain constantly precedes any appearance of swelling; but the interval between the two symptoms differs very much in different subjects. The morbid joint in the course of time, acquires a vast magnitude. Still the integuments retain their natural colour, and remain unaffected. The enlargement of the articulation, however, always seems greater than it really is, in consequence of the emaciation of the limb both above and below the disease. As the distemper of the articulation advances, collections of matter form about the part, and at length burst. The ulcerated openings sometimes heal up; but such abscesses are generally followed by other collections, which pursue the same course. In some cases these abscesses form a few months after the first affection of the joint; on other occasions, several years elapse, and no suppuration of this kind makes its appearance. The patient's health becomes gradually impaired: he loses his appetite and natural rest and sleep; his pulse is small and frequent: and obstinate debilitating diarrhœa, and profuse nocturnal sweats, ensue. Rheumatic white swellings are very distinct diseases from the scrofulous distemper of large joints. In the first, the pain is said never to occur without being attended with swelling. Scrofulous white swellings, on the other hand, are always preceded by a pain, which is particularly confined to one point of the articulation. In rheumatic cases the pain is more general, and diffused over the whole joint. External irritation, either by exposure to damp or cold, or by the application of violence, is often concerned in bringing on the disease; but very frequently no cause of this kind can be assigned for the complaint. As for scrofulous white swellings, there can be no doubt that they are under the influence of a particular kind of constitution, termed a *scrofulous* or *strumous* habit. In this sort of temperature every cause capable of exciting inflammation, or any morbid and irritable state of a large joint, may bring on such disorder as may end in this disease.

WHITES. See *Fluor Albus.*

WHITLOW. Any collection of purulent matter in the fingers is termed a whitlow, which is merely an abscess similar to those which arise in any other part of the body. The collection of matter in whitlow, is situated more or less deep, according as the inflammatory action has attacked the covering of the bone of the finger, the sheath of the tendons, or the more superficial parts; hence, whitlows have been divided into four kinds, viz. 1. Those situated immediately under the skin around the nail; 2. Those in the granular fat forming the pulp of the finger; 3d. Those in which the collection of matter is within the sheath of the tendons; and, 4th. Those where the matter is placed between the periosteum and bone. The deeper seated the disease is, of course the greater the severity of the symptoms, and the risk of destruction of the part. Even in the superficial forms of whitlow, there is generally a great degree of pain, owing to the fine organization of the affected part, and the plentiful supply of nerves which are distributed to it, and there is often a considerable degree of general fever. In the deeper seated whitlows, the constitutional symptoms always run high; there are rigors, succeeded by general fever, and the intense pain precludes the possibility of sleep, whilst if proper and active treatment be not speedily adopted, not only will the finger itself be destroyed, but abscesses form at various points of the hand and arm, and give rise to great suffering and consequent debility, and the cure will be rendered very tedious. In all cases of whitlow, whether superficial or deep, the principal indications are to allay the inflammatory action and pain, and to afford a free outlet to the matter whenever its presence is discovered. In the subcutaneous form of whitlow, these indications are fulfilled by abstracting blood by leeches, and by poulticing the finger, or keeping it in a warm solution of sugar of lead and opium; and when matter has formed, it is readily evacuated by simply dividing the skin, which, if indurated, should be clipt away, and the raw surface dressed with a little basilicon ointment, thinly spread on lint. In the deeper seated disease, the diagnosis regarding the presence of matter is often very difficult, but fortunately this does not make much difference in the treatment; for whenever there is much swelling and tension of the finger, the best remedial plan we can use is to make free and deep incisions, so as to abstract blood freely from the inflamed part, and relieve the tension, and if there be matter present, of course these free incisions will give vent to it; but we should never wait for its formation, as the plan above

recommended, will save the patient much suffering, both local and constitutional. Afterwards the finger should be well fomented with warm water to encourage the bleeding, and then poulticed. In all cases, whilst we employ these local measures, we must never lose sight of the constitutional treatment. The bowels should be freely opened by purgatives, and then antimonial preparations exhibited, to diminish the force of the circulation, and opiates given to obtain rest at night. In severe or neglected cases, where the tendons have sloughed, or the bones or joints become diseased, the finger should be amputated; for though it is possible in many such cases to retain it, by keeping it at rest in the bent position, and allowing the diseased portions of bone to exfoliate, yet the finger in such cases is worse than useless; so that we often find patients, whose anxiety to retain their finger has induced them to submit to a tedious and protracted cure, applying afterwards for the purpose of having the deformed and inconvenient member removed.

WHORTLE-BERRY. See *Uva-ursi.*

WILLOW, or the *Salix.* The bark of three species of willow is admitted into the materia medica of the British colleges, and other species into the pharmacopeia of some of the foreign colleges. The species in our own list are the *Salix Alba,* or White Willow, sometimes called the Huntingdon or Lincolnshire Swallow Willow; the *S. Caprea* or Great round-leaved Willow or Sallow; and the *S. Fragilis,* or Crack Willow. In addition to these, the *S. Russelhana,* or Bedford Willow, has been added as equal to either the preceding; and the *S. Petandria* is officinal in the Prussian pharmacopeia, and in that country considered the best.

We have had considerable experience in the employment of the different species of willow bark, being for a number of years placed in a situation where we were called upon to administer to the poor, without being furnished with any adequate means for doing so; and rather than the sick poor should be sufferers, we diligently looked around us for such means as the fields and gardens furnished, depending on our own resources for the rest. Fever frequently prevailed, and great debility and prostration of strength followed, and the patient, if neglected, became dropsical, and not unfrequently died. Diarrhœa and dysentery, and cholera, (we do not now mean the spasmodic cholera,) were likewise not unfrequent at certain seasons of the year, and these diseases were followed often by a greater degree of debility than that resulting from fever.

Among the domestic remedies resorted to in these cases was willow and poplar bark; (see *Poplar;*) and we preferred the bark of the Great round-leaved Sallow, and next to it, that of the Crack Willow; but we have likewise employed the other species.

For the benefit of others that may be placed in similar circumstances, we would advise the decoction to be prepared, by pouring one pint of boiling water in one ounce of the bruised dried bark, and allowing it to infuse for an hour or two, and boil on a slow clear fire for fifteen or twenty minutes, adding towards the end of the boiling two drams of bruised cinnamon or cassia buds, and straining while hot. Of this decoction, a small wine glassful may be taken three times a day. In substance, it may be given in combination with a few grains of powdered cinnamon, in doses of half a dram or more three times a day; but unless one had the power of a drug-mill, it is difficult to powder, and the dose is too bulky. We prepared a tincture of three ounces of the dried bruised bark, and one ounce of the cinnamon bark, or sometimes ginger, with two pints of proof spirits, and when such a quantity of the decoction was made as would not keep, we added two ounces of this tincture to the quart of decoction. We prepared and prescribed the bark of the poplar in the same proportions. But we must here interpose a necessary hint. There were many poor people who owed their lives to the tonic, who, had they known they were taking a decoction of willow bark, with which they tanned their boots, they would rather have died than swallowed it. Such is the strange prejudice of mankind against remedies that grow at their own door.

The bark of this tribe of plants has been found to contain a principle, which has been denominated *Salicine,* and which has been subsequently found to be an efficacious substitute for that expensive medicine the sulphate of quinine. Its crystalline proximate principle has been discovered in the various species of salix, and it possesses in an eminent degree the properties of the willow bark, being a most effective tonic, exciting the appetite, and promoting digestion; the dose, &c., will be found under *Salicine.*

WIND (in the bowels). See *Flatulence.*

WINDPIPE. See *Trachea.*

WINE. Liquor that has become spirituous by fermentation. The invention of wine is involved in the obscurity of fable; but it must be referred to very remote times. The first portion of the fruit of the vine which had been pressed by accident or design, and allowed to remain a short time undisturbed, would be found to have assumed new and surprising properties; and the method of preserving for constant use the beverage thus obtained would soon be learned. The Egyptians attributed the invention to Osiris, the Greeks to Bacchus, and the Latins to Saturn. Wine was in common use, from an early period, among the Hebrews; but the use of it was, for a long time, forbidden

in Rome, and, even at a later period, was not allowed to women. The Greeks and Romans poured out libations to the gods upon the ground or table; and the custom of drinking to the health of distinguished persons, or absent friends, also prevailed in both nations.

The vine does not thrive except between 35° and 50° of latitude; in higher latitudes, the grape seldom arrives at maturity, and the wine is weak, liable to sour, and destitute of the generous flavour which characterizes that produced in more favourable regions. In warmer climates, the saccharine matter predominates, and a complete decomposition cannot be effected.

The grape in some countries is cut off the plant with a knife; in France, the scissors is used, by which the stems of the branches are rapidly severed. In ruder countries, the hand only is applied, a mode injurious to the grape as well as to the vine. The most approved plan is to make three separate gatherings of the fruit. The first includes all the finest and ripest bunches. The green, rotten grapes, or such as have been eaten into by insects, are cleared from the bunches, which are then carefully carried home. The second gathering implies naturally a second pressing. The grapes are not quite as ripe as the first. The last gathering and pressing consists of the inferior grapes. The gathered bunches are deposited as lightly as possible, to prevent the grapes from being bruised. All dry or spoiled grapes are cast aside, where proper care is used, as fine or delicate wine is intended to be made, Each labourer places his gathering in an ozier basket, or in a sort of wooden dosser, carried with the least possible motion. In France, in the department of the Marne, the grapes are carried on horseback covered with cloths. The grapes in some countries are plucked from the bunches; in others, they are placed entire in the press, stems and all. The best grapes only are used for making the better kinds of wine. The astringent principle lodged in the stems is thought to be beneficial, and to impart to the wine a capacity of endurance or long keeping. When picked, it is only for red wine, and is generally done by the hand. White-wine grapes are rarely picked from the clusters.

Grapes were anciently trodden out, after being exposed on a level floor, to the action of the solar rays for ten days; they were then placed in the shade for five days more, in order to mature the saccharine matter. This practice is still followed in some of the islands of the Greek Archipelago, at St Lucar, in Spain, in Italy, at least in Calabria, and in some of the north-eastern departments of France. The fermentation is facilitated greatly by this process. In some parts of France, a labourer with sabots treads the grapes out as they come from the vineyard in a square box, having holes in the bottom and placed over a vat—a very barbarous method. The murk is then removed, and he proceeds with fresh grapes till the vat is full. Sometimes they are squeezed out in troughs, by naked men, using both sabots and hands at once.

The wine press differs in construction in different countries. There are several kinds. For red wine, the grapes are trodden before they are pressed, in order to disengage the colouring matter from the skins; but in making white wine, this operation is never performed. In either case, where the press is applied, the first pressing is dispatched as quickly as possible. At first the press is used gently, that the wine may not overflow. The pressure is then gradually increased, until the murk becomes moderately compressed. This is the first pressing. The grapes that did not sustain pressure, being scattered over the edges of the heap, are now gathered up, the press relaxed, and being placed upon the murk, the press is tightened again. The wine from this is called of the second pressing. The edges of the whole mass are now squared down with a cutting instrument, so that the mass of fruit is reduced to the form of an immense oblong cake, upon which the cuttings of the edges are heaped, and the press worked again, which makes wine of the third pressing, or, as the wine-maker calls it, wine of the first cutting. The pressing and cutting are repeated two or three times, and what liquid flows after is called among the labourers wine of the second or third cuttings. There is only one species of wine which is made without beating, treading, or pressing; this is what they call in Spain *lagrima*. The grapes, melting with ripeness, are suspended in bunches, and the wine is the produce of the droppings. This can only be effected with the Muscatel grape of the warm south. In this way the richest Malaga is made. In Cyprus the grapes are beaten with mallets, on an inclined plane, with a reservoir at the end.

The juice of the grape, when newly expressed, and before it has begun to ferment, is called must, and, in common language, sweet wine. It is turbid, has an agreeable and very saccharine taste, and is very laxative. When the must is pressed from the grapes, and put into a proper vessel and place, with a temperature of between 55° and 60°, a gradual fermentation ensues. Bubbles of carbonic acid gas (fixed air) rise to the surface, bringing along with them the skins, stones, and other grosser matters of the grapes, and which form a scum, or soft spongy crust, that covers the whole liquor. After a time, the crust becomes stiff, is broken in pieces by the ascending gas, and falls to the bottom of the liquor. When this takes place, if we would secure a good and generous wine, all sensible fermentations must be checked. This is done

by putting the wine into close vessels, and carrying these into a cellar or other cool place. The wine produced by this first fermentation differs entirely and essentially from the juice of grapes before fermentation. Its sweet and saccharine taste is changed into one that is very different, though still agreeable and somewhat spirituous. It has not the laxative quality of must, but affects the head, and, if taken immoderately, occasions drunkenness; and, when distilled, it yields, instead of the insipid water obtained from must, genuine alcohol. When any liquor undergoes the spirituous fermentation, all its parts seem not to ferment at the same time, otherwise the fermentation would probably be very quickly completed, and the appearances would be much more striking; hence, in a liquor much disposed to fermentation, this motion is more quick and simultaneous than in another liquor less disposed. Experience has shown that a wine, the fermentation of which is very slow, is never good, and therefore, when the weather is too cold, the fermentation is accelerated by heating the place in which the wine is made. A too hasty and violent fermentation is also hurtful, from the dissipation and loss of some of the spirit. However, we may distinguish, in the ordinary method of making wines of grapes, two periods in the fermentation, the first of which lasts during the appearance of the sensible effects above alluded to, in which the greatest number of fermentable particles ferment. After this first effort of fermentation, these effects sensibly diminish, and ought to be stopped, for reasons hereafter to be mentioned. The fermentative motion of the liquor then ceases. The heterogeneous parts, that were suspended in the wines by this motion, and render it muddy, are separated, and form a sediment called lees, after which the wine becomes clear. But though the operation is then considered as finished, and the fermentation apparently ceases, it does not really cease; and it ought to be continued in some degree if we would have good wine. In this new wine, a part of the liquor probably remains that has not fermented, and which afterwards ferments, but so very slowly, that none of the sensible effects produced in the first fermentation are here perceived. The fermentation, therefore, still continues in the wine, during a longer or shorter time, although in an imperceptible manner; and this is the second period of the spirituous fermentation, which may be called the imperceptible fermentation. The effects of this fermentation are the gradual increase of the quantity of alcohol, and of the separation of the acid salt, called tartar, from the wine. As the taste of tartar is harsh and disagreeable, it is evident that the wine, which, by means of the insensible fermentation, has acquired more alcohol, and has disengaged itself of the greater part of its tartar, ought to be much better, and more agreeable; and for this reason chiefly old wines are universally better than new. But insensible fermentation can only ripen and meliorate the wine if the sensible fermentation have regularly proceeded, and been stopped in due time. We know certainly that, if a sufficient time have not been allowed for the first period of the fermentation, the unfermented matter that remains, being in too large a quantity, will then ferment in the bottles, or close vessels, in which the wine is put, and will occasion effects so much more sensible as the first fermentation shall have been sooner interrupted; hence these wines are always turbid, emit bubbles, and sometimes break the containing vessels, from the large quantities of air disengaged during the fermentation. We have an instance of these effects in the wine of Champagne, and in others of the same kind: the sensible fermentation of which is interrupted, or rather suppressed, that they may have this sparkling quality. It is well known that these wines make the corks fly out of the bottles; that they sparkle and froth when they are poured into glasses; and lastly, that they have a taste much more lively and piquant than wines that do not sparkle; but this sparkling quality, and all the effects depending on it, are only caused by a considerable quantity of carbonic acid gas, which is disengaged during the confined fermentation that the wine has undergone in close vessels. This air, not having an opportunity of escaping, and of being dissipated as fast as it is disengaged, and being interposed betwixt all the parts of the wine, combines, in some measure, with them, and adheres in the same manner as it does to certain mineral waters, in which it produces nearly the same effects. When this air is entirely disengaged from these wines, they no longer sparkle, but lose their brisk taste, and become insipid. Such are the qualities which wine acquires, in time, when its first fermentation has not continued sufficiently long. These qualities are given purposely to certain wines to indulge taste or caprice; but they are not regarded as suited to daily use. Wines for daily use ought to have undergone so completely the sensible fermentation, that the succeeding fermentation shall be insensible, or, at least, very nearly so. Wine, in which the first fermentation has been too far advanced, is liable to worse inconveniences than that in which the first fermentation has been too quickly suppressed; for every fermentable liquor is, from its nature, in a continual intestine motion, more or less strong, according to circumstances, from the first instant of the spirituous fermentation, till it is completely purified; hence from the time of the completion of the spirituous fermentation, or even before, the wine begins to undergo the acid or acetous fermentation. This acid fermentation is very slow and insensible,

when the wine is included in very close vessels and in a cool place; but it gradually advances, so that in a certain time the wine becomes completely sour. This evil cannot be remedied, because the fermentation may advance, but cannot be reverted. Wine merchants, therefore, when their wines become sour, can only conceal or remove this acidity by alkalies or alkaline earths. But these additions communicate to wine a dark, greenish colour, and a taste which, though not acid, is somewhat disagreeable. Besides, calcareous earths accelerate, considerably, the total destruction and putrefaction of the wine. Oxides of lead, having the property of forming with the acid of vinegar, a salt of an agreeable saccharine taste, which does not alter the colour of the wine, and which, besides, has the advantage of stopping fermentation and putrefaction, might be employed to remedy the acidity of wine, if lead and all its preparations were not pernicious to health, as they occasion most terrible colics, and even death, when taken internally. If wine contain oxide of lead, it may be discovered by transmitting through a portion of it, in a wine-glass, a current of sulphureted hydrogen gas, which will cause a glistening, black precipitate of sulphuret of lead.

When the wine has attained a sufficient degree of maturity, it is freed from the lees, by being *racked*, as it is termed, into a clean cask; and, in order to prevent a renewal of the fermentation, it is subjected to the operation of sulphuring. This process is generally performed by means of sulphur matches, applied to the cask into which the wine is to be racked, and should the fermentation still continue, must be renewed as often as is necessary. Sometimes must, strongly impregnated with sulphurous acid gas, is added to the wine, and answers the same purpose. After sulphuring, the greater proportion of wines require to be further clarified, or fined, before they attain a due brightness. For this purpose, various substances are used, which, by their chemical or mechanical action, unite with such materials as disturb the purity of the wine, and precipitate with them to the bottom. The substances in general use are isinglass and the white of eggs; but, as these are of a putrescent nature, gum Arabic has been used instead of them. In Spain, the white wines are sometimes clarified with fuller's earth: powdered marble, gypsum, heated flints, beech-wood chips, sand, &c., are also used.

When the wine has thus been prepared, it is almost always *medicated*, as it is called, before it is ready for the market; and very little wine is, in fact, a simple or natural liquor. One of the most common processes of medication is mixing different wines together, sometimes of the same quality or country, but often of different ones. For this purpose, that season is chosen in which the wines show a disposition to renew their fermentation. They are then said to *bear the fret;* and the operation is called *fretting-in.* The mixing different wines always disturbs both, so that they tend to ferment again; and when the fermentation is determined, they form a proper compound. In the wine countries, particular grapes (rough, or coloured, or astringent, or high-flavoured) are cultivated for the mere purpose of mixing their juice with that of others. Another process is that of mixing brandy with the natural liquor. The tendency of this substance, thus mixed, is to decompose the wines in process of time, causing the extractive matter, or mucilage, to be deposited, as well as the colour, and, at the same time, to destroy their lightness and flavour. Few wines naturally possess much flavour; and the same is true, to a great degree, of colour. It is therefore a part of the business of the manufacturer to communicate, artificially, such a flavour and colour as the taste of the customer demands. This result is obtained in various ways, some of which continue a secret. The flavour, however, is often generated by the application of bitter almonds, oak chips, orris-root, wormwood, rose-water, &c., while colour is produced by the use of dye-woods, logwood, &c., berries, oak chips, burnt sugar, iron, &c. Both processes require to be managed with great delicacy and skill.

Wines are red, when the black grape, with its skin, has been used, and of more or less yellowish-white colour, when the white grape, or even when the black grape, freed of its skin, has been employed. Wines, with respect to their properties, may be divided into three principal divisions, viz., 1. The *astringent* or *dry wines;* such are those of Alicant, Bordeaux, Burgundy, Sherry, Madeira, &c. These wines contain a small quantity of tannin, which gives them a taste more or less harsh. 2. The *sweet wines*, such are Malaga, Rota, Rivesaltes, Lunel, &c., containing a tolerably large quantity of sugar, which has escaped fermentation. And, 3. The *foaming* or *sparkling wines*, such as champagne, which, being bottled up before they have undergone a perfect fermentation, contain a large quantity of carbonic acid gas in solution. All the wines give, on analysis, very nearly the same products, viz. water, alcohol, a little mucilage, colouring principles, supertartrate of potassa, tartrate of lime, acetic acid; and some of them contain, besides, carbonic acid; finally, a very volatile principle, which has not as yet been isolated, and to which the peculiar flavour or *bouquet* of the wine has been attributed. To the presence of alcohol they are principally indebted for their stimulant and diffusible properties; and this principle, which may be separated by distillation, exists in them in very different proportions, as may be perceived by the following table, drawn up by Mr Brande:—

Names of the Wines, Malt and Spirituous Liquors, and the Proportion of Alcohol (specific gravity 0·825) in one hundred Parts of these Liquids by Measure.

Lissa (average)	25·41
Marsala (average)	25·09
Port (average)	23·39
Madeira, and red or Burgundy Madeira (average)	22·27
Xeres or Sherry (average)	19·17
Teneriffe	19·79
Lachryma Christi	19·70
Constantia (white)	19·75
Ditto (red)	18·92
Lisbon	18·94
Cape Muscat	18·25
Roussillon (average)	18·13
Malaga	17·26
Hermitage (white)	17·43
Malmsey Madeira	16·40
Lunel	15·52
Bordeaux wine or claret (average)	15·10
Sauterne	14·22
Burgundy (average)	14·57
Nice	14·63
Champagne (still)	13·80
Ditto (sparkling)	12·61
Red Hermitage	12·32
Vin de Gravè	13·37
Frontignac	12·89
Cote rotie	12·32
Rhenish wine (average)	12·08
Tokay	9·88
Gooseberry wine	11·84
Cider (highest average)	9·87
Ditto (lowest ditto)	5·21
Mead	7·32
Ale (average)	6·87
Brown stout	6·80
Porter (average)	4·20
Small beer	1·28
Brandy	53·39
Rum	53·68
Gin	51·60
Whiskey	54·32
Irish ditto	53·90

The action of wines upon the animal economy depends principally upon the quantity of alcohol they contain. However, a certain given quantity of wine does not act in the same way as a mixture of alcohol and water in the same proportions; and certain wines, yielding on distillation very nearly the same proportion of alcohol, do not inebriate with the same facility. This difference must be ascribed to the various kinds of combinations in which alcohol exists in these complex products. Astringent wines act as tonics and stimulants; and the sparkling wines, which act so promptly and so powerfully on the brain, notwithstanding the small proportion of alcohol they contain, exercise likewise a very decided diuretic influence.

In regard to the dietetic or medical qualities of the different sorts of wines, we copy the following observations from Henderson's valuable work (History of Wines, quarto, 1824), from which we have borrowed largely in compiling this article. '1. Among the brisk wines, champagne may be considered the best, and is the least noxious, even when drunk in considerable quantity. The wines of Champagne intoxicate speedily, probably in consequence of the carbonic acid in which they abound, and the volatile state in which their alcohol is held; and the excitement is of a more lively and agreeable character, and shorter duration, than that which is caused by any other species of wine, and the subsequent exhaustion less. Hence the moderate use of such wines has been found, occasionally, to assist the cure of hypochondriacal affections and other nervous diseases, where the application of an active and diffusible stimulus was indicated. The opinion which prevails that they are apt to occasion the gout, seems to be contradicted by the infrequency of that disorder in the province where they are made; but they are generally admitted to be prejudicial to those habits in which that disorder is already formed, especially if it has originated from addiction to stronger liquors. With respect to this class of wines, however, it is to be observed that they are drunk too often in a raw state, when, of course, they must prove least wholesome; and that, in consequence of the want of proper cellars, and other causes which accelerate their consumption, they are very rarely kept long enough to attain their perfect maturity. It is also worthy of notice, that, in order to preserve their sweetness, and promote effervescence, the manufacturers of champagne commonly add to each bottle a portion of sirup, composed of sugar-candy and cream of tartar, the highly frothing kinds receiving the largest quantity. Therefore, contrary to the prevailing opinion, "when the wine sparkleth in the glass, and moveth itself aright," it is most to be avoided, unless the attributes of age should countervail all its noxious properties. 2. The red wines of Burgundy are distinguished by greater spirituosity, and a powerful aroma. Owing, perhaps, to the predominance of the latter principle, they are much more heating than many other wines which contain a larger proportion of alcohol. The exhilaration, however, which they cause, is more innocent than that resulting from the use of heavier wines. The better sorts may be sometimes administered with advantage in disorders in which stimulant and subastringent tonics are required. The same observation will apply to the wines of the Rhone, and the lighter red wines of Spain and Portugal. 3. Possessing less aroma and spirit, but more astringency, than the produce of the Burgundy vineyards, the growths of the Bordelais are, perhaps, of all kinds, the safest for daily use, as they rank among the most perfect light wines, and do not excite intoxication so readily as most others. They have, indeed, been condemned by some writers as productive of gout, but, I apprehend, without much reason. That with those people who are in the practice of soaking large quantities of Port and Madeira, an occasional debauch in claret may bring on a gouty paroxysm, is very possible; but the effect is to be ascribed chiefly to the transition from a strong brandied wine to a lighter beverage—a transition almost always followed by a greater or less derangement of the digestive organs. Besides, we must recollect, that the liquor which passes under the denomination of claret is generally a compounded wine. It is therefore unfair to impute to the wines of the Bordelais those mis-

chiefs which, if they do arise in the manner alleged, are probably, in most instances, occasioned by the admixtnre of other vintages of less wholesome quality. 4. The wines of Oporto, which abound in the astringent principle, and derive additional potency from the brandy added to them previously to exportation, may be serviceable in disorders of the alimentary canal, where gentle tonics are required. But the gallic acid renders them unfit for weak stomachs; and what astringent virtues they show will be found in greater perfection in the wines of Alicant and Rota, which contain more tannin and less acid. The excitement they induce is of a more sluggish nature than that attending the use of the purer French wines, and does not enliven the fancy in the same degree. As a frequent beverage, they are unquestionably much more pernicious. 5. For a long time, the vintages of Spain, and particularly the sacks, properly so called, were preferred to all others for medicinal purposes. The wines of Xeres (Sherry) still recommend themselves by the almost total absence of acidity. 6. Of all the strong wines, however, those of Madeira, when of good quality, seem the best adapted to invalids; being equally spirituous as sherry, but possessing a more delicate flavour and aroma, and, though often slightly acidulous, agreeing better with dyspeptic habits. Some have thought them beneficial in cases of atonic gout, probably without much cause; for whenever a disposition to inflammatory disorders exists, the utility of any sort of fermented liquors is very doubtful. 7. The light wines of the Rhine, and those of the Moselle, are much more refrigerant than any of the preceding, and are frequently prescribed, in the countries where they grow, with a view to their diuretic properties. In certain species of fever, accompanied by a low pulse and great nervous exhaustion, they have been found to possess considerable efficacy, and may be given with more safety than most other kinds; as the proportion of alcohol in them is small, and its effects are moderated by the presence of free acids. They are also said to be of service in diminishing obesity. 8. It is difficult to conjecture on what circumstances the ancients founded their belief in the innocuous qualities of sweet wines, contrasted with the drier and more fully fermented kinds. They may not intoxicate so speedily, and, as they cloy sooner upon the palate, are perhaps generally drunk in greater moderation. When new, they are exceedingly apt to disorder the stomach; and when used too freely, they produce all the same effects as the heavier dry wines. In their more perfect state, they may answer the purpose of agreeable and useful cordials; but, as the excess of saccharine matter retards their stimulant operation, they ought always to be taken in small quantities at a time.'

Wines, Ancient and Modern. Our limits will only permit us to touch upon this part of the subject. Among the Greeks and Romans, the sweet wines were those most commonly in use; and, in preparing their wines, the ancients often inspissated them until they became of the consistence of honey, or even thicker. These were diluted with water previously to their being drank; and, indeed, the habit of mixing wine with water seems to have prevailed much more in antiquity than in modern times. Among the principal Greek wines, the Maronean and Ismarian were of Thracian growth; the Pramnian, of uncertain growth, was a strong, hard, astringent liquor, resembling Port; but the luscious sweet wines are the favourite topics of the Grecian drinking songs. They were chiefly the products of the Ionian and Ægean isles. The Chian was famous for its exquisite aroma, the Lesbian for its delicious flavour, and the Thasian was a generous sweet wine, acquiring by age a delicate odour of the apple. The Ariusian or Arivisian, and the Phanean, called by Virgil the king of wines, were products of Chios. Besides these and other indigenous growths, several African and Asiatic wines enjoyed a high reputation among the Greeks. The Bithynian wines were of the choicest quality: the wines of Byblos, in Phœnicia, vied in fragrancy with the Lesbian: the white wines of Mareotis and Tænia, in Egypt, were also famous for their delicate perfume. The finest wines used by the Romans were the produce of Campania, which formed one continued vineyard. The Cecuban was a generous, light wine, but apt to affect the head, and ripening only after a long term of years. The Falernian, according to Henderson, was a strong, durable wine, being, when new, rough, harsh and fiery, and requiring to be kept a long time, before it attained a due degree of mellowness. The Setina was a delicate, light wine, the favourite of Augustus, but not even mentioned by Horace, who had a decided predilection for the strong wines. The Massican appears to have been a species of Falernian. The Calenum, Caulinum and Statanum were also highly prized by the Romans. The Albanian, when properly matured, was an excellent dry wine. Among the lighter growths of the Roman territory, the Sabine, Nomentan, Venafran and Spoletan were among the most agreeable. The Mamertine, a light and slightly astringent wine, and the Pollian, a sweet wine, were among the growths of Sicily. Spanish and Gallic wines were also used by the Romans, as well as the eastern growths. The richer wines were reserved by the ancients for the dessert; and among the Greeks the most esteemed dessert wines were the Thasian and Lesbian; among the Romans, the Cecuban, Albanian and Falernian of native growths, and, when they had become acquainted with the products of

foreign countries, the Chian and Lesbian. Madeira, so called from the island which produces it, is much used in this country. There is a great difference in the flavour and other qualities of the Madeira wines: the best are produced on the south side of the island: they may be kept for a very long period, and, as is well known, are often sent long voyages in warm climates, to mellow them. They are naturally very strong, but commonly receive an addition of brandy when racked off. The Madeira wines retain their qualities unimpaired in both extremes of climate, suffering no decay, and constantly improving as they advance in age. Indeed, they are not in condition until they have been kept for ten years in wood, and afterwards allowed to mellow nearly twice that time in bottle; and even then they will hardly have reached the utmost perfection of which they are susceptible. When of good quality, and matured as above described, they lose all their original harshness, and acquire that agreeable pungency, that bitter sweetishness, which was so highly prized in the choicest wines of antiquity, uniting great strength and richness of flavour with an exceedingly fragrant and diffusible aroma. The nutty taste, which is often very marked, is not communicated, as some have imagined, by means of bitter almonds, but is inherent in the wine.

WINTER GREEN, or *Pyrala Umbellata*. This plant is a native of North America, and was introduced to the notice of the faculty by Dr Somerville, of the British medical staff in Canada, as a valuable remedy in certain diseases of the urinary organs. It is likewise known by the names of *Pepsessewa* by the Indians, and by the technical name of the *Chemaphala Umbellata*, and is likewise found in the northern parts of Europe and Asia.

This herb has lately been admitted into the Dublin pharmacopeia; and the leaves, stems, and in fact the whole herb, are used in medicine. It has a slightly aromatic bitter taste, and possesses astringent, tonic, and diuretic virtues; and was, and still is employed medicinally, by the American Indians. It first attracted the notice of Dr Mitchell, who introduced it to the profession in America in 1803. Its constituents are resin, tannin, and bitter extractive and woody fibre; with a little gum and vegetable calcareous salts. When fresh, the leaves exhale a peculiar odour, and appear to possess considerable acridity; for in their bruised state (*fresh*), they produce rubefaction, vesication, and desquamation when applied to the skin. The *dried* leaves, or herb in infusion, act as a tonic, producing an agreeable sensation in the stomach, and assisting the appetite and the digestive process. It promotes the action of the secreting organs, especially the kidneys, increasing the quantity of urine, and otherwise proving useful in several forms of nephritic diseases, and greatly resembles uva ursi. (See *Uva Ursi*). It is employed in dropsies, disorders of the urinary organs, and scrofula; and so celebrated is it in this last disease, it is known in the American provinces by the name of '*King's Cure*,' or a cure for the *King's Evil*. The usual mode of using this remedy is in the form of decoction; and the dose is one or two ounces twice or thrice a day. The extract has likewise been employed in doses of fifteen grains. The decoction is prepared by boiling one ounce of the herb in two pints of water down to one, and straining.

This is one of the most valuable family medicines an American settler can possess. The decoction is very useful in those dropsical swellings of the legs which often succeed what in popular language is called the *fever and ague*. A wine glass of the decoction, and two teaspoonfulls of gin every three hours, will effect wonders in such cases. If our countrymen who are settled in the back-woods of Canada, Nova Scotia, and New Brunswick, would only deign to converse with the natives on the virtues of plants, and their mode of employing them in the cure of diseases, they would certainly derive much useful information from these unlettered but time-experienced physicians. Often used the late Dr Cleghorn of Glasgow to say to his pupils, 'never be above receiving information even from a beggar on the roadside.'

WOMB, Diseases of. Under the article *Uterus* we have already given a general description of the position and anatomical characters of the human womb; at present we intend briefly to describe the diseases to which that organ is liable. The principal of these are, Prolapsus Uteri, or falling down of the womb; Retroversion, or falling backwards; Polypus, Cancer, &c.

Prolapsus Uteri. 'This very common disease occurs in every variety of degree; from where the womb falls a little lower than natural into the vagina to where it is completely protruded without the external parts. In those latter cases it is always greatly enlarged, so that when standing or walking, it appears like a large excrescence hanging between the thighs. As the os uteri always forms the apex of the tumor, there is no difficulty in distinguishing this disease by proper examination.

'It was formerly imagined that prolapsus uteri (falling down of the womb) was occasioned by relaxation of the broad ligaments; but it is now generally admitted that it is owing chiefly to relaxation of the vagina, or of the muscles lining and filling up the outlet of the pelvis. The disease is not dangerous, but, in delicate constitutions, it is often extremely distressing.

'In slight cases, especially in young subjects, this affection may be cured by the use of the cold-bath, tonic medicines, &c. But in much

the larger majority of cases, all that can be done is to palliate by means of certain mechanical contrivances calculated to support the contents of the pelvis. Pessaries, rounded instruments made of ivory or wood, have generally been employed to fulfil this purpose and support the uterus; but there are not many cases where it is either necessary or safe to wear such instruments. If possible, the mechanical contrivances should be adapted for external use.' *Professor Hamilton, on Diseases of Females.*

Womb, retroversion of. By this term is meant, such a change of the position of the womb that the fundus, or base, is turned backwards and downwards upon its neck between the vagina and rectum; and that the mouth of the womb, in proportion to the descent of the fundus, is turned forward and up towards the pubis; so that it cannot be felt, or at least not without difficulty; and is therefore readily distinguished from falling down of the womb. By examination *per vaginam*, there will be felt a large round tumor, occupying the lower part of the pelvis, and pressing the vagina towards the pubis. On examining by the rectum, the same swelling will be felt pressing that part of the gut into the hollow of the sacrum; and if both these examinations are made at the same time, we may readily discover that the tumor is confined between the vagina and rectum. Besides the direct knowledge thus gained, retroversion of the womb is generally accompanied with other very distinguishing symptoms. There is in every case, together with extreme pain, a suppression of urine; and by the continuance of this distension of the bladder, the tumor formed by it in the abdomen often equals in size, and resembles in shape, the uterus in the fifth or sixth month of pregnancy; but it is necessary to observe, that the suppression of urine is frequently absolute, only before the retroversion of the uterus, or during the time its turning backwards; for when the retroversion is completed, there is often a discharge of urine, so as to prevent an increased distension of the bladder, though not in a sufficient quantity to remove the previous distension. There is also obstinate constipation of the bowels, owing to the pressure of the retroverted uterus upon the rectum, which renders the injection of a clyster very difficult or even impossible. But all the painful symptoms seem to arise from the suppression of urine; for none of those parts which are apt to sympathise in affections of the womb, are disturbed by the retroversion.

The retroversion of the uterus has generally occurred about the third month of pregnancy, and sometimes, though rarely, after delivery; it may likewise happen where the womb from any cause is enlarged to the size it acquires about the third month of pregnancy, but not so readily as in the pregnant state, for then the enlargement and consequently the greatest weight, is at the fundus. If the womb be but little enlarged, or if it be enlarged beyond a certain size it can scarcely be retroverted; for in the former case there would not be sufficient weight at the fundus to produce retroversion; and in the latter case, the enlarged womb would be above the hollow of the sacrum, and would be supported by the bodies of the lumbar vertebræ.

As regards the treatment, little can be done by the domestic practitioner. The late Professor Hamilton of Edinburgh, says, 'Reposition of the uterus can alone relieve the patient, and to facilitate the operation venesection is sometimes necessary, and in every case the bladder must be previously emptied by means of the catheter. The horizontal posture is to be enjoined till the womb has distinctly emerged from the cavity of the pelvis.

Polypous Excrescences of the Womb. These excrescences are of different textures in different cases; some being soft, like the mucous polypus of the nose; others firm, hard, and fibrous. There is also great variety as to size, as some polypi have excited great irritation and other symptoms, so as to lead to the detection of their presence when not larger than a kidney-bean; whilst others have remained undiscovered till larger than the head of a new born infant; but whatever be the texture or size, these excrescences adhere to the uterus by a narrow neck or pedicle.

At first the symptoms produced by polypi are occasional uterine hemorrhage, sense of pressure and bearing down, and leucorrheal discharge; but if the polypi be not removed, symptoms of broken health soon exhibit themselves, such as prostration of strength, œdematous swelling of the lower extremities, &c., which frequently terminate fatally.

Considerable danger attends this disease; and the only remedy is by surgical operation, viz., removing the polypus by the ligature or forceps; and even then in some cases where the operation appears for the time successful, inflammation of some of the internal viscera takes place and destroys the patient.

Womb, Cancer of. With regard to this disease, we have already given the general characters of cancer under its proper head. The only local symptoms which complicate it where it attacks the womb are, violent bearing down pains, profuse fœtid sanguineous discharge, and enlargement of the glands in the groin, which rapidly take on the diseased action. As the treatment is seldom satisfactory even in professional hands, and quite beyond the skill of the domestic practitioner, we will not enter on its consideration here, further than to state that in the latter stages, opiates in large doses may be given as palliatives to allay the excessive pain.

WORMS, Intestinal. The worms which are generally found in the human intestines may be referred to three different species, viz. the ascarides or small white worms; the lumbricus or long round worm, and the tænia or tapeworm.

I. The *ascarides*, are small white worms like threads, and vary from the eighth to quarter and half an inch in length; they generally lodge in the lower part of the rectum, and are enveloped in the mucus or slime which exists in that part of the gut.

II. The *lumbrici*, or long round worms, somewhat resemble the common earth-worm in appearance; they generally lodge in the small intestines or stomach, and are therefore sometimes vomited. They often excite but little uneasiness, although in other cases they give rise to great constitutional disturbance. Lumbrici may exist in considerable numbers, and some instances are on record where upwards of fifty have been voided.

III. The tænia or tapeworm. Of this worm there are two kinds; the common tapeworm, which may exist in families, and the solitary tapeworm. Tapeworms appear to be composed of a great number of pieces joined together by articulations. In the solitary tapeworm, these articulations are long and narrow; whilst in the common tapeworm they are short and broad. The solitary tapeworm has been known to measure between thirty and forty feet. Tapeworms generally infest the upper part of the intestinal canal.

Worms chiefly exist in children and sickly adults, and generally depend on some diseased condition of the intestinal tube, impaired digestion, or the nature of the aliment. They are of much more frequent occurrence in warm than in cold climates.

Symptoms. Worms frequently produce general emaciations with swelled and tense belly; gnawing and burning pain in the stomach and bowels; irregular appetite, pale, sickly countenance; foul tongue; fœtid breath; irritation and inflammation of the nostrils, occasioning great itching and desire to pick the nose: and there is also generally great itching about the anus, especially in cases where the *ascarides* exist; and there is occasional feverishness at night, producing restlessness and want of sleep. In some cases even cerebral symptoms and epileptic convulsions take place. Children who are troubled with worms often awake suddenly, screaming; and are frequently observed to grind their teeth during sleep. All these symptoms, however, may be produced by other causes, such as inflammation or irritation of the mucous membrane of the bowels, and therefore we ought to be careful in examining the state of the belly and the appearance of the stools before prescribing for the patient.

Treatment. The first thing to be done is to attend to the digestive functions; by regulating the diet, and restoring the intestinal secretions to a healthy state, by means of gentle alterative purgatives; whilst at the same time we attempt to exterminate the intruders, by means of worm medicines or anthelmentics.

These remedies divide themselves into two classes; one which operates mechanically, which includes the ordinary purgatives, common oils, sulphur, saline medicines, tin-filings, cowhage, &c.; another, the remedies included in which have a peculiar poisonous effect on the animals; the principal remedies of this class are spirit of turpentine, calomel, hellebore, male fern, tobacco, rue, and some other strong vegetable bitters, and preparations of steel. Of all the above remedies, spirit of turpentine, calomel, jalap, and cowhage have been found the most successful. It is worthy of notice, that the turpentine, in does of from half an ounce to an ounce, combined with oil, is almost specific for destroying the tapeworm; but great caution is required in prescribing it, and the bowels should be well opened so as to prevent it being detained in *the* intestines; it may also be used in the form of clyster.

In the ascarides or small worm, the use of calomel purges combined with jalap, or followed by a black draught, together with the occasional use of a clyster, composed of common salt, dissolved in some bitter infusion, will be found often the best plan of treatment.

WORMSEED, *Artemisia Santonicum*, or *Tartarian Southernwood Tops.* A plant of the same class and order as the common wormwood. The tops are sold in the druggists's shop under the name of wormseed. They are, like some other safe and useful medicines, almost supplanted by those of a more active, although not of a more safe or efficacious character. In the *ascaris lumbricoides*, or long round worm of children, which is often upwards of a foot in length, and nearly as thick as a goose quill, with small horny extremities, the powder of wormseed will be found a most effectual remedy. In children of from four to six years of age, the powder may be given in doses of half a dram, or even two scruples, mixed with treacle or molasses in the morning, fasting; and the following morning, four grains of calomel, and a scruple of powder of rhubarb, likewise in treacle, fasting. From six to ten years of age, the dose of wormseed powder may be increased to one dram, and the powder of rhubarb to half a dram. These, alternated every second day, will soon rid the young sufferers from these troublesome inmates. The artemisia or southernwood tops, is used in many of the continental hospitals, both in the form of powder and in infusion. One of the forms is four drams of the wormseed powder, three drams of cream of tartar,

and two drams of refined sugar, rubbed intimately together in a mortar and divided in sixteen papers or doses, one to be taken every third or fourth hour. In the Parisian hospitals, it is combined with calomel, camphor, and syrup, and formed into a bolus. But from long and extensive experience, we know of no better way in which it can be administered than the simple powder in treacle, followed up the next morning by a suitable purgative.

WORMWOOD, or *Absinthium vulgare*, or *Artemisea Absinthium* of Linnæus, or common Wormwood. This well known native plant possesses a strong unpleasant odour, and a bitter nauseous taste; all which qualities are imparted either to water or alcohol. Its virtues are anthelmentic, or worm destroying, as its name imports; and it is also antiseptic, discutient, and tonic. A strong decoction of the plant, say an ounce boiled for ten or fifteen minutes, in half a pint of water, and strained through a cloth while hot, and when cooled to a proper temperature, used as an enema, is an excellent domestic remedy for the *ascaris vermicularis*, or the small thread worm, not in general exceeding an inch in length and which inhabits the rectum or lower part of the bowels. These vermin often occasion an intolerable itching, and will sometimes crawl out of the lower passage, to the great annoyance of the patient. A dose of rhubarb and calomel, according to the age of the patient, adminished alternately every other day, with the wormwood decoction in the form of a clyster or enema, will seldom fail in removing this kind of worms.

Wormwood, like most other tonic bitters, was formerly used in ague, but has now given place to more appropriate remedies; it is yet used in indigestion, hypocondriasis, obstructions of the liver, gout, scurvy, and calculi, both in the urinary and gall bladder. In these cases it is supposed to act from its tonic effects on the stomach and digestive organs, and is generally used in the form of infusion, about half an ounce of the leaves and flowers to half a pint of boiling water; of which two or three wine glassful are taken in the course of the day. A tincture of the flowering tops formerly found a place in the Edinburgh pharmacopeia; and was considered a more agreeable formula than the watery infusion, strongly impregnated with the virtues of the wormwood. Those who feel a perference for medicines of home growth and preparation, will find the following answer all the purposes of a cheap stomachic bitter:

Flowering tops of wormwood, cut in small pieces, one ounce.
Lemon peel, and the root of calamus aromaticus, each half an ounce, sliced.
Infuse for seven days in proof spirit, and strain a table spoonful in a wine glass of cold water occasionally.

It should, however, be borne in mind, that bitters of every class, when extensively used, are apt to exert a debilitating influence on the nervous powers, and induce paralytic affections. Wormwood is sometimes used in powder, and the extract of the plant is formed into pills, in conjunction with aperients and aromatics. It is now, however, most frequently used in formentations, and from the ease with which a considerable quantity of the herb may be procured, it is well calculated for this latter purpose, as the tops and leaves will contain the warmth for a considerable time. There is another species, the *Sea Wormwood*, or *Absinthium Maritinum*, or the *Absinthium Ponticum* of Linnæus. The sea wormwood, so called from its growing most plentifully on the sea shore, has neither so strong a smell or so bitter a taste as the common. It is sometimes called Roman wormwood by herbalists, and has finer hairy leaves than the common. A conserve of the fresh leaves and tops was at one time celebrated in dropsical and worm cases, but is now out of fashion. The only preference claimed for this plant over the common is its being more pleasant and palatable; and that the oil and extract are especially less bitter and disagreeable. Nevertheless as the former has a greater share of medicinal virtues than the latter, when both are equally within reach, the common is yet to be preferred. Of course it may be used in the same forms, and for the same purposes.

WOUNDS are divided, by writers on surgery, into several kinds, the distinctions being founded either upon the sort of weapon with which the injury has been inflicted, or upon the circumstance of a venomous matter having been introduced into the part, or, lastly, upon the nature of the wounded parts themselves, and the particular situation of the wound. Hence, we have *cuts*, *incisions*, or *incised wounds*, which are produced by sharp-edged instruments, and are generally free from all contusion and laceration. The fibres and texture of the wounded part have suffered no other injury but their mere division; and there is, consequently, less tendency to inflammation, suppuration, gangrene, and other bad consequences, than in the generality of other species of wounds. Incised wounds also, may usually be healed with greater quickness and facility than other wounds which are accompanied with more or less of contusion and laceration, the surgeon has only to bring the opposite sides of the wound into contact with each other, and keep them in this state a few hours, and they will unite and grow together. Another class of wounds are *stabs*, or *punctured wounds*, made by the thrusts of pointed weapons, as bayonets, lances, swords, daggers, &c., and also by the accidental and forcible introduction of considerable thorns, nails, &c., into the flesh. These wounds frequently penetrate to a great depth so as to injure large blood-vessels, viscera, and other organs of importance: and

as they are generally inflicted with much force and violence, the parts suffer more injury than what would result from their simple division. It also deserves notice that a great number of the weapons or instruments by which punctured wounds are occasioned, increase materially in diameter from the point towards their other extremity; and hence, when they penetrate far, they must force the fibres asunder like a wedge, and cause a serious degree of stretching and contusion. It is on this account that bayonet wounds of the very soft parts are ordinarily often followed by violent inflammation, an alarming degree of tumefaction, large abscesses, fever, delirium, and other very unfavourable symptoms. The opening which the point of such a weapon makes it quite inadequate to the passage of the thicker part of it, which can only enter by forcibly dilating, stretching, and otherwise injuring the fibres of the wounded flesh. A third description of wounds are the *contused* and *lacerated*, which strictly comprehend, together with a variety of cases produced by the violent application of hard, blunt, obtuse bodies to the soft parts, all those interesting and common injuries denominated *gunshot* wounds. Many bites rank also as contused and lacerated wounds. In short, every solution of continuity which is suddenly produced in the soft parts by a blunt instrument or weapon which has neither a sharp point nor edge, must be a contused, lacerated wound. It has been remarked that, in case of violent death by gunshot wounds, the expression of the countenance is always that of languor, whatever may be the natural energy of the sufferer's character; but in death from a stab, the countenance preserves its traits of feeling or ferocity and the mind its bias, to the last.

Poisoned wounds are those which are complicated with the introduction of a venomous matter or fluid into the part. Thus, the stings and bites of a variety of insects afford us examples of poisoned wounds; and the surgeon, in the dissection of putrid bodies, or in handling instruments infected with any venomous matter, is exposed to the danger of poisoned wounds from cuts. The most dangerous, however, of this class of wounds, occur from the bites of the viper, the rattlesnake, &c., or from those of rabid animals. Wounds may, likewise, be universally referred to two other general classes, the simple and complicated. A wound is called *simple* when it occurs in a healthy subject, has been produced by a clean, sharp-edged instrument, is unattended with any serious symptoms, and the only indication is to reunite the fresh-cut surfaces. A wound, on the contrary, is said to be *complicated* whenever the state of the whole system, or of the wounded part, or the wound itself, is such as to make it necessary for the surgeon to deviate from the plan of treatment requisite for a simple wound. The differences of complicated wounds must, therefore, be very numerous, as they depend upon many incidental circumstances, the principal of which, however, are hemorrhage, nervous symptoms, contusion, the unfavourable shape of the injury, the discharge or extravasation of certain fluids, indicating the injury of particular bowels or vessels, &c. All large or deep wounds are attended with more or less of symptomatic fever, which usually comes on at a period varying from sixteen to thirty-six hours after the infliction of the injury, and is generally of the inflammatory, but sometimes of an asthenic character. It is of great consequence to attend to the type of this fever in the treatment; for the loss of blood, which may be required and sustained with impunity in the one species of fever, may prove most injurious, if not fatal, in the other.

Having thus given our readers a general account of the nature and peculiarities of the different kinds of wounds, we now proceed to describe the plan of treatment applicable to each; commencing with that of the simple incised wound.

Incised wounds. Treatment. In all wounds, but especially in those which come under this head, bleeding is the circumstance the most alarming to the non-professional bystander and it is one which requires to be promptly and actively treated. If the bleeding be very profuse, as in cases where a large artery is wounded, the tournequet, or some substitute for it must be at once applied to arrest the hemorrhage, until the divided vessels be secured by ligature. In other cases, where it is more a general oozing of blood from a large cut surface, or where the divided vessels are very small, the application of cloths dipt in cold water, or compresses dipt in some styptic, will be sufficient. In cases where the bleeding is from wounded veins, ligatures must, if possible, be avoided, as inflammation is apt to follow their application. In such cases, every thing which might tend to impede the return of the blood towards the heart through the vein above the wounded point, should be removed, and pressure applied immediately over or below the wounded point of the vessel, acting, in fact, on the same general principles which guide us in arresting the flow of blood after blood-letting by venesection. In all clean incised wounds our object is to procure immediate union of the cut surfaces by the process of adhesion, or what is technically termed *union by the first intention*, and with this view the divided surfaces, after the bleeding has ceased, must be brought into accurate contact, and so retained by sutures, or adhesive plasters. In large wounds some points of suture are absolutely necessary to retain the parts in opposition, and in these also, more or less ooz-

ing of blood continues for some time, so that the proper dressings cannot be applied at once; for if the edges of the wound were brought into accurate contact, a thin clot of blood would soon be interposed between the cut surfaces, which would prevent adhesion; and therefore, the best practice is to bring the edges together by two or three points of the interrupted suture, and to apply cloths wetted with cold water over the wound, for six, eight, or ten hours, in fact, until all oozing has ceased, and the visible cut surface has become glazed; then any clots which may have formed are to be gently wiped away with a bit of soft sponge, and the edges of the wound more accurately approximated, by means of strips of adhesive plaster interposed between the sutures; care being taken, however, to leave an aperture at the most dependent part of the wound, to allow the free escape of any slight discharge which may take place. The part is then lightly covered with a thin piece of soft dry rag, or surgeon's lint, to protect it from the air. By following this plan, union by the first intention is much more likely to be obtained, than by bringing the surfaces at once into accurate contact, and then loading the part with plasters, compresses, and bandages; for the lymph, by which the cut surfaces are agglutinated, is not effused till six or eight hours after the division of the parts, so that, in reality, no time is lost by adopting the plan we have recommended, whilst in the old method, clots of blood were retained between the cut surfaces, as the dressings prevented their escape, and at the same time the compresses, bandages, and the other pieces of dressing which were used, overheated the wounded part, and so gave rise to inflammation and suppuration, instead of adhesion. The sutures should be removed on the second or third day, or earlier, if they give rise to any irritation.

If our attempts to procure adhesion fail, then all the dressings should be removed, and if the local inflammation run high, blood may be abstracted by punctures or scarifications, and the bleeding encouraged by fomenting the parts, and then the wound covered with a fold of thick lint dipt in warm water, and covered with oiled silk, attention being paid to renew the warm wetted lint from time to time; afterwards, when granulations commence, the treatment must be conducted on the same principles which guide us in the simple granulating ulcer. See *Ulcers.*

Treatment of contused or bruised wounds. In this class of wounds bleeding is seldom present at the first, for the vessels are usually so much twisted or torn, that for the time it is spontaneously arrested; but hemorrhage at a later period, from sloughing of the vessels, frequently occurs when the injury has been in the neighbourhood of a large vessel, and this particularly is the case in gunshot wounds, so that the patient should be carefully watched. In cases of severe injuries of this nature, such as gunshot wounds, railway accidents, and the like, the patient is in great danger of sinking from the severe shock, if proper means be not used to procure re-action. For this purpose, small quantities of stimuli, such as wine, or spirits and water, should be administered, and the patient placed recumbent, and hot bottles applied to the feet and abdomen. When re-action takes place, we must then consider the best treatment to be adopted for the local injury: if the injury be in the extremities, then the questions of amputation, or extraction of the foreign body, if it be a gunshot wound, present themselves; but these are cases where the non-professional can be of no service, and regarding which it is not the province of a work of this nature to treat. If, however, the foreign body in a case of gunshot wound can be readily felt, the wound should be enlarged, and the bullet extracted; but it is not warrantable, as a general rule, either for the non-professional or surgeon, to cut down deeply, and poke about for a foreign body, which would be much more readily extracted when loosened by suppuration, a process which must always take place in severe contused wounds, whether the body be extracted at first, or not. As to the general plan of treatment to be adopted, both in this class, and also in the class of punctured wounds, it may be briefly summed up as follows.

Place the parts in as easy and natural a position as possible, and fix them by slips of bandage, or otherwise, so as to prevent motion. Apply lint dipt in warm water over the wound, and occasionally foment. When inflammation sets in, abstract blood by punctures or leeching, or even general bleeding, as the symptoms of the particular case may require. If tension together with erysipelatous inflammation occurs, dilate the wounds freely, and apply poultices and fomentations, and treat the symptomatic fever by purgatives, followed by opiates combined with antimony or ipecacuanha, so as to produce free diaphoresis. Lastly, when profuse purulent discharge takes place, support the patient's strength by nourishing diet and wine, and use the other means recommended under the article on *Hectic Fever.*

As regards the treatment of poisoned wounds, we refer our readers to the articles *Hydrophobia* and *Venomous Animals*, where the treatment is fully detailed.

WOURALI POISON. Waterton, the eccentric wanderer in South America, gives the following interesting account of the method pursued by the Indians in making wourali poison, a species of matter of the most powerful action on animal life, but which destroys life so gently, that the victim appears to be in no pain whatever; and probably, says he, were the truth known, it

feels none, saving the momentary smart at the time the arrow enters. A day or two before the Macoushi Indian prepares his poison, he goes into the forest in quest of the ingredients. A vine grows in these wilds which is called wourali, and it is from this that the poison takes its name, and it is the principal ingredient. When he has procured enough of this, he digs up a root of a very bitter taste, ties them together, and then looks about for two kinds of bulbous plants, which contain a green and glutinous juice. He fills a little vessel, which he carries on his back, with the stalks of these, and lastly, ranges up and down till he finds two species of ants; one of them is very large and black, and so venomous, that its sting produces a fever. It is most commonly to be met with on the ground. The other is a little red ant, which stings like a nettle, and generally has its nest under the leaf of a shrub. After obtaining these, he has no more need to range the forest. A quantity of the strongest Indian pepper is used; but this he has already planted round his hut. The pounded fangs of the Labarri snake, and those of the Connacouchi, are likewise added. These he commonly has in store; for, when he kills a snake, he generally extracts the fangs and keeps them by him. Having thus found the necessary ingredients, he scrapes the wourali vine and bitter root into thin shavings, and puts them into a kind of colander made of leaves; this he holds over an earthen pot, and pours water on the shavings; the liquor which comes through has the appearance of coffee. When a sufficient quantity has been procured, the shavings are thrown aside. He then bruises the bulbous stalks, and squeezes a proportionate quantity of their juice through his hands into the pot. Lastly, the snake's fangs, ants, and pepper, are bruised and thrown into it. It is then placed on a slow fire, and as it boils, more of the juice of the wourali is added, according as it may be found necessary, and the scum is taken off with a leaf. It remains on the fire till reduced to a thick scum of a deep brown colour. As soon as it has arrived at this state, a few arrows are poisoned with it to try its strength. If it answer the expectations, it is poured out into a calabash, or little pot of Indian manufacture, which is carefully covered with a couple of leaves, and over them a piece of deer's skin, tied round with a cord. They keep it in the most dry part of the hut, and from time to time suspend it over the fire to counteract the effects of dampness.

Among the instances adduced of the extraordinary effects of wourali poison, Waterton mentions the following:—A large well-fed ox, from nine hundred to a thousand pounds weight, was led to a stake by a rope sufficiently strong to allow him to move to and fro. In order to bring him down, three poisoned arrows were put into him; one was sent into each thigh, just above the hock, in order to avoid wounding a vital part, and a third was shot traversely into the extremity of the nostril. The poison seemed to take effect in four minutes. Conscious as though he would fall, the ox set himself firmly on his legs, and remained quite still in the same place, till about the fourteenth minute, when he smelled the ground, and appeared as if inclined to walk. He advanced a pace or two, staggered and fell, and remained extended on his side, with his head on the ground. His eye, a few minutes ago so bright and lively, now became fixed and dim; and though you put your hand close to it as if to give him a blow there, he never closed his eyelid. His legs were convulsed, and his head from time to time started involuntarily; but he never showed the least desire to raise it from the ground. He breathed hard, and emitted foam from his mouth. The startings, or subsultus tendinum, now became gradually weaker and weaker; his hinder parts were fixed in death; and in a minute or two more, his head and fore-leg ceased to stir. Nothing now remained to show that life was still within him, except that his heart faintly beat and fluttered at intervals. In five-and-twenty minutes from the time of his being wounded he was quite dead. His flesh was very sweet and savoury at dinner.

WRY-NECK. Temporary distortion of the neck may arise from cold, glandular swelling, and a variety of other causes; but by the term wry-neck, we mean a permanent distortion of the neck, by which the head is inclined constantly to one side. This state may arise either from disease of the cervical vertebræ, or from permanent contraction of the sterno-mastoid muscle of either side. In whatever way it originally commences, if the disease be allowed to continue, without any interference, the vertebræ of the neck soon become affected, and therefore in cases of long standing, the operation of dividing the sterno-mastoid muscle when contracted, can seldom be of much service in restoring the head to its natural position, the cervical vertebræ being affected, and fixed in the unnatural position; but if the distortion evidently depends on permanent contraction of the muscle, and the operation be performed early, it sometimes proves highly satisfactory; and as it is a very slight and simple operation, it is worthy of trial in such cases.

Y

YAM. A slender herbaceous vine, having large tuberous roots, which are much used for food in Africa and the East and West Indies. They are mealy, and esteemed to be easy of digestion, are palatable, and not inferior to any roots now in use, either for delicacy of flavour or nutriment. They are eaten either roasted or boiled, and the flour is also made into bread and puddings. The juice of the roots, when fresh, is acid, and excites an itching on the skin. There are many varieties of the roots; some spreading out like the fingers, others twisted like a serpent; others, again, very small, scarcely weighing more than a pound, with a whitish, ash-coloured bark, whereas the bark is usually black. The flesh of the yam is white or purplish, and viscid, but becomes farinaceous or mealy when cooked.

D. aculeata, by some considered only an improved variety of the preceding, is universally cultivated in the East and West Indies, in Africa, and in all the islands of the Pacific. The roots are frequently three feet long, and weigh thirty pounds. All the varieties are propagated like potato, but they arrive much sooner at maturity. The buds of the roots are not apparent; but still a small piece of skin is left to each set; for from this piece of bark, alone, the shoots proceed. Holes are made in rows two feet apart, and eighteen inches distant in the row: into these holes two or three sets are put, first covered with earth, and then with a little haum or rubbish, to retain moisture. The only after-culture consists in hoeing up the weeds. They are commonly planted in August, and are ripe about the November or December following. When dug up, the greatest care is taken not to wound them, as that occasions them to sprout much earlier than they would otherwise. An acre of ground has been known to produce from twenty to thirty thousand pounds weight. The species of *dioscorea* are all vines, bearing, usually, heart-shaped and strongly-nerved leaves, and inconspicuous flowers.

YAWS, or *Frambœsia*. This disease is endemic in Africa and the West Indies, amongst the negroes. The appearance of the disease is preceded by a degree of febrile excitement for some days, after which an eruption appears upon the face, groins, and armpits. This eruption consists sometimes of small pimples, or rather pustules; at first minute, but gradually enlarging, until they attain the size of a sixpence. When the skin is broken, a foul crust or scab forms, from under which a fungus excrescence, resembling a strawberry or mulberry shoots up, and hence the African name for the disease. It takes a long time in going through its course, varying in different individuals, from six to nine months, or even double that time. In its nature it partakes somewhat of the character of syphilis, and very closely resembles, in some respects, the sibbens, prevalent in some parts of the Highlands of Scotland. It is communicated by a specific virus by contagion, is not communicable by effluvia, and is taken only once during life.

Of this disease very little has hitherto been written; but although, in general, it occurs in a mild form, yet in many cases it produces great ravages on the constitution, and the negroes are often much mutilated by it. In the treatment, mercurial medicines are said to be hurtful, and the principal remedies employed are laxatives, diaphoretics, and the compound decoction of sarsaparilla with nitric acid, and local applications to the fungoid ulcerations.

YAWNING, or GAPING. An involuntary opening of the mouth, generally produced by weariness or an inclination to sleep, sometimes by hunger, sympathy, &c. It often precedes the fit in some intermittent fevers, and, in some instances, by the frequency of its recurrence, becomes a real disease. It is supposed to be determined by an interruption of the pulmonary circulation. Yawning, according to Boerhaave, is performed by expanding at one and the same time all the muscles capable of spontaneous motion, by extending the lungs, by drawing in, gradually and slowly, a large quantity of air, and gradually and slowly expiring it after it has been retained for some time, and then restoring the muscles to their natural state. Hence the effect of yawning is to move, accelerate, and equally distribute all the humours through all the vessels of the body, and, consequently, to qualify the muscles and organs of sensation for their various functions. When yawning is troublesome, long, deep respiration, or drawing in the air at long intervals, relieves it.

YEAST is the barm or froth which rises in beer and other malt liquors during a state of fermentation. When thrown up by a quantity of malt or vinous liquid, it may be preserved to be put into another at a future period, on which it will exert a similar fermentative action. Yeast is likewise used in the making of bread, which, without such an addition, would be heavy and unwholesome. Yeast has the property of preventing putrefaction and acting as a stimulant, and with this view it is often added to poultices which are applied to gangrenous sores

YELLOW FEVER. A very fatal disease, occurring in hot climates, and running its course with great rapidity. The principal symptoms are, violent headache, chiefly confined to the frontal region, the face may either be flushed or very pale at the commencement; these are soon succeeded by heat and itching over the whole body, nausea, violent thirst, yellowness of the skin, first observable on the temples, the conjunctival covering of the eyes, and the sides of the neck, but soon spreading over the whole body; violent pains in the epigastric region and loins now supervene; there is a sensation of burning heat internally, with coldness of the extremities. The urine diminishes, and is finally suppressed, vomiting of bilious fluid takes place, and this soon changes to vomiting of dark matter resembling coffee, or what is termed 'black vomit,' discharges of blood from the bowels and stomach take place, accompanied with all the usual symptoms of rapid sinking of the vital powers, such as hiccup, subsultus tendinum, and low delirium.

These violent symptoms, however, are at first alternated with distinct remissions of considerable duration, sometimes of from six to eight hours, so that the friends of the patient often indulge in the delusive hope that it is merely a severe bilious attack; but they are soon undeceived, for after each remission the symptoms recur with renewed vigour.

There has been much discussion as to the precise character of this fever, some considering it a peculiar disease, whilst others consider it as a violent form of bilious remittent fever, accompanied with typhoid symptoms. 'The violence and fatality of this disease,' says Dr Parr, 'have directed very powerfully the attention of physicians to its nature. As it obviously occurred at the period when the autumnal remittents were common on the American continent and in the southern parts of Europe, it was highly probable that this was only the usually returning epidemic, from accidental circumstances rendered more violent and fatal. But when its nature was more closely examined, it seemed highly probable, that it was a typhus attended with bilious symptoms, rather than a remittent of a peculiarly malignant kind.

'When the violence and malignancy of the disease were ascertained, no country was willing to claim the destructive visitant. It was supposed to be an importation, and probably was so. At Martinique, it was the fever from Siam; in America from Bulam. From a careful examination of all the facts, it appears probable that some contagion, uniting with the epidemic tendency of the bilious autumnal remittent of the country, has produced the destructive monster. The observations in Philadelphia seem to trace the yellow fever to some foreign importation. At Martinico, at Grenada, and Jamaica, there appears always to have been a concurring cause. It is doubtful, however, whether this is constantly contagion. The putrefaction of vegetable and animal substances, which in any situation may occasion ague or typhus, in concurrence with the autumnal remittent, may produce the yellow fever. . . . Much idle—it is an improper word—many highly pernicious disquisitions have been indulged, whether this fever is contagious. The existence of a doubt shows that it may not be highly so. Yet it has in so many instances been communicated from an infected person, that the utmost caution is requisite. It has even been doubted whether the plague is contagious; but those who have suggested and disseminated the doubt are answerable for the lives of thousands, and in some instances have paid the forfeit with their own.' We are inclined to adopt the views of the late Dr Mackintosh, who regarded this fever as a violent form of bilious remittent accompanied with gastro-enteritic symptoms in many cases, but rapidly assuming a typhoid character. Accordingly we have placed it under the head of *Remittent Fever*, where our readers will find its symptoms and treatment fully detailed. We may merely state here, that as regards the latter great difference of opinion obtains amongst those who have practised in countries where the disease prevails; some altogether condemn general or even local blood-letting to relieve the inflammatory symptoms, dreading the tendency to typhus, whilst others are equally loud in favour of depletion at first; but all seem to trust much to mercury and diaphoretics, and to blisters over the epigastrium, to allay the vomiting; the cold affusion is also highly extolled by some modern writers. This difference of opinion amongst practical men, depends in no small measure on the fact, that yellow fever, like typhus fever in our own country, varies very much in its character in different seasons and districts, and even in different individuals, and therefore our treatment must always be modified by the symptoms and character of the fever in each particular case.

YELLOW ROOT, or *Xanthorasia Apafolia*. This root has an intensely bitter taste, and consists principally of gum resin, and is in the United States and our North American colonies esteemed an excellent tonic, in doses of from one scruple to two of the powder two or three times a-day.

Z

ZINC. A metal of a bluish-white colour, somewhat brighter than lead, of considerable hardness, and so malleable as not to be broken with the hammer, though incapable of much extension in this way. At a temperature between 212° and 300° Fahr., it is both malleable and ductile. Its specific gravity is from 6·9 to 7·2. When broken by bending, its texture is seen to be coarsely granular. On account of its imperfect malleability, it is difficult to reduce it into small parts by filing or hammering; but it may be granulated, like the malleable metals by pouring it, when fused, into cold water; or, if it be heated nearly to melting, it is then sufficiently brittle to be pulverized. It melts at about 700° Fahrenheit, and soon afterwards becomes red hot, burning with a dazzling white flame of a bluish or yellowish tinge, and is oxidized with such rapidity that it flies up in the form of white flowers, which are called *flowers of zinc* or *philosophical wool.* These are generated with such rapidity that the access of air is soon intercepted, and the combustion ceases unless the metal be stirred, and a considerable heat kept up. If the metal be heated in close vessels, it rises without being converted into oxide. Chemists are not agreed as to the number of oxides of zinc; but the one above mentioned is the only one of importance. At common temperatures, it is white; but when heated to low redness, it assumes a yellow colour, which gradually disappears on cooling. It is quite fixed in the fire, and insoluble in water. It is a strong salifiable base, forming regular salts with acids, most of which are colourless. It combines also with some of the alkalies. It consists of thirty-four parts zinc and eight parts oxygen. When metallic zinc is exposed for some time to air and water, or is kept under water, it acquires a superficial coating of a gray matter, which is called a *sub-oxide of zinc.* When zinc is burned in chlorine, a solid substance is formed, of a grayish-white colour, semi-transparent. This is the *chloride of zinc.* It may likewise be made by heating together zinc filings and corrosive sublimate. It is soft as wax, fuses at a temperature a little above 212° Fahr., and rises in the gaseous form at a heat much below ignition. Its taste is intensely acrid, and it corrodes the skin. It acts upon water, and dissolves in it, producing much heat. Its solution, decomposed by an alkali, affords the white hydrated oxide of zinc. This chloride has been called the *butter of zinc* and *muriate of zinc.* It consists of nearly equal weights of zinc and chlorine. Bromide and iodide of zinc may be formed by processes similar to those for preparing the analogous compounds of other metals. Sulphuret of zinc may be formed by heating to redness a mixture of oxide of zinc and sulphur. This substance, in a natural state, is found in Germany, Belgium, France, Sweden, and Great Britain. The salts of zinc possess the following general properties: They generally yield colourless solutions with water; ferroprussiate of potash, sulphureted hydrogen and alkalies, occasion white precipitates; infusion of galls produces no precipitate.

The salts of zinc which are principally used in medicine are the acetate, carbonate, oxide, and sulphate.

Zinc, Acetate of. A metallic salt, composed of zinc in combination with acetic acid; it exists in the form of fine crystals, and is used in solution as a stimulating, and astringent lotion in chronic inflammation of mucous membranes; as in ophthalmia and gonorrhœa.

The most usual and cheapest manner of preparing the solution, is by adding a solution of the sulphate of zinc to a solution of the acetate or sugar of lead. When owing to the strong affinity of the sulphuric acid for the lead the salts become mutually decomposed, the sulphuric acid of the sulphate combining with the lead, and forming an insoluble sulphate of lead, which is precipitated, whilst the clear supernatant fluid which remains, is the solution of the acetate of zinc. See *Domestic Pharmacopeia.*

Zinc, Carbonate of. Calamine. This is usually sold in the shops in the form of a pale reddish powder, and is the common tutty which is used for dusting those parts of infants which are liable to be chafed and excoriated. Added to simple cerate when melted, in the proportion of one part of the powder to five of the cerate, it forms the ointment named Turner's cerate, and forms a useful dressing in cases of slight burns.

Zinc, Oxide of. The oxide of zinc when pure is a white powder, and is now seldom used in medicine as an internal remedy. It used formerly to be prescribed in cases of epilepsy, in doses of from two to ten grains twice or thrice a day; but never with marked advantage. It is now principally used, mixed with simple cerate, as a dressing for slight burns and irritable sores. The impure oxide of zinc is of a gray colour, and used as *tutty* for dusting infants in the same manner as the powdered carbonate.

Zinc, Sulphate of. White vitriol. This

is by far the most useful preparation of zinc. In small doses, when given internally, it acts as an astringent and tonic. In larger doses it is an active emetic, and as it produces very speedy vomiting it is used in cases of poisoning by laudanum or other vegetable poisons; the dose in such cases is from sixteen to thirty grains, dissolved in warm water. Externally it is used dissolved in rose or distilled water as an eye-wash; and also as an injection in cases of gleet and leucorrhœa or whites, and in combination with the spirit of rosemary, compound spirit of lavender, and water, it forms the red lotion so frequently recommended throughout this work as an application to indolent sores.

ZYGOMATIC MUSCLES. Two small narrow muscles which arise from the zygomatic process, and are inserted into the angle of the mouth. (See Plate of *muscles* and *explanatory table*.)

ZYGOMATIC PROCESS. A process or projection of the temporal bone, which forms the malar or cheek bone, and forms an arch over the lower part of the temporal muscles.

APPENDIX.

ALIMENT. Whatever is appropriated for food or nutriment by the various classes of living beings which move upon our globe, may be called an aliment. Under this head some authors have considered the peculiar qualities of all those articles used by man as aliments, and for this purpose have published lists, more or less complete, and, according to various tastes and views, have classified them accordingly, and to this branch of medical science they have given the name of the *Materia Alimentaria*, or, in other words, the materials of which aliments are composed. Aliments may, perhaps with propriety, be divided into two great classes, viz. animal and vegetable, and these again subdivided, the animal into three great divisions, the beasts of the field, the fowls of the air, and the fishes of the sea; while the vegetable kingdom may likewise be divided into six, and, were we inclined to go into the minutiæ of the subject, perhaps into twice that number; but it will suffice for our purpose to enumerate the following, viz. herbs, roots, fruits, seeds, lichens, and fungi, or mushrooms.

We are aware that the animal kingdom might have admitted of a more minute division, and that even every one of the three divisions we have named might, with great advantage to those who enter on the systematic study of medicine, have been again subdivided; but for all practical purposes, the above arrangement will suffice. No difference of opinion need arise respecting the situation which each individual substance ought to occupy in the arrangement; and for the most part their physical properties, and their qualities as nutritive bodies, have a correct and obvious connection to the class to which they belong. This holds good in almost every instance with respect to the animal and vegetable kingdoms; and it is from these alone that every substance which can be properly said to be nutritive, is derived. With respect to those that are neither of animal or vegetable origin, although a more scanty and less definite class, there can be no impropriety in uniting them all under one division, even although we may be inclined to regard them as a kind of appendage to the two former.

It may here be remarked that no substance can properly be regarded as nutritive, or directly affording the materials for nutrition, unless it be an organised body, consisting essentially of oxygen, hydrogen, carbon, and azote, combined together in certain proportions. To the products of the animal and vegetable kingdoms this character exclusively belongs, as these alone form organised compounds. With respect to other bodies which are not capable of organisation, or which belong to the mineral kingdom, although they may be useful in promoting the process of digestion, yet they do not serve for the immediate purpose of nutrition. They operate either by exciting the action of the digestive organs, or by rendering the substances themselves more digestible. We may instance common salt as an example of the first class, and water as an example of the second, when forming the vehicle for different kinds of soups and gruels.

Whether we consider those substances of the *animal kingdom* commonly employed in diet, with regard to their effects upon the stomach, or according to the relation which they bear to other substances belonging to the same class, they may be commodiously arranged into the three classes we have already stated, viz. quadrupeds, birds, and fishes, and to this we may add a fourth class, consisting principally of the *mollusca* and crustacea, and a fifth, composed of animal fluids.

Animals differ from vegetable substances in these particulars; first, bulk for bulk they afford a greater quantity of nutritive matter than vegetable substances; secondly, except in stomachs that have been trained to it by long habit, mere animal diet appears to be less proper for maintaining the healthy state of the digestive organs than a mixed diet, or even than one entirely composed of vegetable matter; thirdly, the effect of a diet consisting entirely of animal matter, appears to increase the contractibility of the muscular fibre, and the sensibility of the nervous system, and, in general, if not carried to excess, it seems to operate by exciting all the powers and faculties, and carrying their energies to the highest pitch of perfection.

In the vegetable class, we should consider the herbs, roots, fruits, seeds, lichens, and sea-weeds, and the fungi or mushrooms, and then our readers might obtain a bird's eye view of the whole articles composing the Materia Alimentaria placed before them, in their application to the wants and enjoyments of man. What a rich and varied bill of fare has our bountiful Creator provided for man, the lord of this lower world, and how often is he unmindful of his kindest provider, by either abusing or despising these manifold bounties, and even living in ignorance of many which are scattered around him in rich profusion! See *Diet*, *Training*, and *Vegetable Diet*, in body of work.

B

BLEEDING BY LEECHES. As these little animals are often depended on for drawing off blood in very dangerous diseases, and as they often seem capriciously determined to resist all endeavours made to cause them to adhere, the following directions for obtaining that end with more certainty, are added to what has already been said of leeches in the body of the work.

The least flavour of any medicinal substance which has been applied to the skin, or even the accumulation of the matter of perspiration, is sufficient to prevent them fastening; and therefore the part to which they are to be applied should first be well washed with soap and warm water, and then with a little cold water or milk. The best method of applying them, is by retaining them to the skin by a small wine-glass, the bottom of a pill box, or if there be only a single leech by means of a small cone, made by twisting a piece of paper, when they will generally fasten in a short time. It is also advisable to allow them to crawl about upon a clean dry towel previous to applying them. If after these means have been used the leech refuses to bite, a drop of sugared milk may be put on the part, or a little blood drawn by scratching the surface with a needle or point of a lancet, when the animal will generally fasten. When applied inside of the mouth, or near the anus, the leech should be watched, lest it should crawl into the gullet, or up the bowel, where it might fasten, and cause great loss of blood. Should it pass into either of these situations, the best means of dislodging it is, in the former case, to swallow a strong solution of table salt or vinegar, and in the latter, to use a strong saline or assafœtida enema, by which means the animal will be speedily destroyed.

The discharge of blood from the wound made by the leech, is generally of more service than the quantity actually drawn by the animal itself, and for this reason the bleeding should be encouraged by fomenting the part with warm water cloths; or what is better, as exposing the patient to less fatigue and cold, the immediate application of a warm bran poultice. Occasionally the flow of blood is encouraged by applying cupping glasses over the wounds. Not unfrequently, however, we find that the bleeding from leech bites is very troublesome, particularly in infants. In such cases, the best means of stopping it are applying bits of lint dipt in spirits of turpentine, or powdered alum, and keeping up pressure over the wound; but perhaps the most effectual remedy is, the application of lunar caustic, or the end of a red hot wire. In some very troublesome cases, it has been found necessary to transfix the puncture with a fine needle, and then twist a silk thread round it, as in the convoluted suture. See *Suture*.

On the removal of leeches, the rejection of the blood which they have swallowed may be obtained by the application of salt externally; but it is to be remarked, that a few grains is sufficient for this purpose, and that covering them with salt, as is frequently done, generally destroys them.

C

CARIES. By this term is meant ulceration of bone. Bones may become inflamed from various causes, such as exposure to cold, the effects of mercury, or from the effects of external violence; but from whatever cause the inflammation arises, it terminates, as in other tissues, either in resolution, suppuration, or mortification. When we consider the nature of the

osseous tissue, it may readily be supposed that resolution is by no means so common a termination of inflammatory action in bone as in the softer tissues. For owing to the dense nature of the osseous tissue, the effusion by which the diseased bloodvessels naturally relieve themselves in the softer textures is in a great measure prevented, and so it does not take place to such an extent as to prove of service in relieving the distended vessels; whilst at the same time bone being less vascular, and consequently endowed with comparatively little vitality, is very liable to suffer from the less favourable terminations of inflammatory action.

Suppuration when it occurs in bone, is necessarily connected with loss of substance and condensation of the neighbouring parts; purulent collections too, external to the bone, if not speedily evacuated, and especially if they are bound down by fasciae or unyielding sheaths, press upon the bone and soon give rise to breach of its surface, by causing absorption of the outer plate and the subjacent cancellated tissue of the bone. Similar effects are produced by the pressure of aneurisms or other tumors. In these cases, where the bone is as it were only secondarily affected, a speedy reparation of the ulcerated part very frequently takes place on removing the cause; as on the evacuation of the superimposed collections of pus, cure of the aneurism, or removal of tumors. But where ulceration follows imflammatory action and suppuration of the bone, the case is generally very different, and hence we may restrict the term ulceration to those cases where the parts still retain considerable power of action, and where the breach of surface caused by absorption is gradually repaired by new matter thrown out by the vessels of the bone and periosteum; and this condition generally exists when the disease is confined to the surface of the bone; and when it has been produced by external causes, such as those we have already enumerated. Caries we would define as a peculiar kind of ulceration, analogous to the weak ulcer of the soft parts; in which there is but little vitality and scarcely any attempt at reparation by nature; and where indeed reparation is with difficulty obtained even by the most active interference. Caries most generally attacks the cancellated structure of bone; indeed, the termination of inflammatory action in the osseous tissue, is very much influenced by the nature of the bone implicated, and the constitution of the patient. Thus caries generally attacks bones, composed principally of cancellated texture, whilst necrosis or mortification of bone is more common, in bones of denser structure, such as the shafts of the long bones, and both these diseases, but especially caries, occurs more readily, and from slighter causes, in persons of scrofulous constitutions than in others.

'Caries (says Mr Liston,) almost uniformly occurs in the heads of long bones, and in the cancellated structure of the short bones, in the same way that unhealthy suppuration most frequently takes place in the loose cellular substance of the soft parts. When matter has formed in the substance of a bone, the outer lamella (hard outside plate of the bone) becomes absorbed, and the effusion undermines the periosteum, which from the distention also ulcerates, and the matter spreads into the neighbouring cellular tissue, or makes its way to the surface and is evacuated. The discharge is often continued in consequence of a dead portion of the cancellated structure being imbedded, either in the carious cavity or in the soft parts.'

At the beginning of the disease, when there always exists more or less inflammatory action, the patient suffers most excruciating agony; so great, indeed, as to give rise to a considerable degree of symptomatic irritative fever; and the pain is always worse at night, so that for weeks he scarcely enjoys any repose. The superimposed parts are generally swollen, inflamed, and tense from infiltration of serum into the neighbouring cellular tissue, in chronic cases, and in the scrofulous form of caries; the neighbouring soft parts have a soft boggy feeling, and are of a purple colour.

In caries when ulceration has been fairly established, the soft parts seem to partake somewhat of the indolent nature of the diseased bone, and hence some have classed it as a distinct form of ulceration of the soft parts, under the title of *carious ulcer*. The unhealthy action in the soft parts, however, depends on the continued presence of the exciting cause, for 'in caries the affected portion of bone appears neither to possess vitality enough to enable it to repair the breach; nor to be sufficiently deprived of vitality to be thrown off by the surrounding parts.' This shows us the necessity of surgical interference for its removal; for when this is effected, the ulcer of the superimposed soft parts heals readily and rapidly.

The discharge which proceeds from the carious part is very fœtid, thin and profuse, often bloody, the surrounding skin is excoriated and livid; whilst the surrounding soft parts are much altered in structure, and condensed from effusion into the cellular tissue. Sometimes the surface of the ulcer is covered with pale, flabby, and fungoid granulations, at other times the bone is seen bare and discoloured.

In that form of scrofulous caries which is frequently seen to attack the small bones in the hands and feet of young subjects, the diseased action has more of a chronic character; the part is first swollen, discoloured, and painful, then abscesses form at different points, and when these are opened the bones are felt rough, and denuded of periosteum; at various points a fresh collection of pus forms from time to time, and the

discharge from the bones is thin and sanious. In general, this form is complicated with scrofulous disease in other parts of the body; such as glandular swellings of the neck, tabes mesenterica, &c.

The constitutional disorder attendant on caries is very great at first. There is violent irritative fever, and after this has abated, and the discharge from the bone has continued for some time, hectic fever comes on, under which, and the profuse discharge, patients not unfrequently sink rapidly. In some instances the irritation is so great as to destroy the patient in a very few months or even weeks; but this is rarely the case unless the disease be complicated with disease of some other part, as of the lungs, or ulceration of the bowels, which sometimes co-exist with it in scrofulous patients; for it is very common to see even a person by no means of a strong constitution, bear up for a long period under extensive disease of bone.

Gradually, however, from repeated attacks of irritative fever followed by hectic, and increased discharge, the health gives way, and the patient dies exhausted, unless relieved by the natural or artificial removal of the cause. In the spontaneous cure of caries, the process is generally effected by the occurrence of excited action in the parts, the diseased portion becomes necrosed, or in other words, entirely deprived of vitality, and is thrown off; whilst the breach of surface is filled up by new matter, secreted by the vessels of the neighbouring bone and periosteum.

Treatment. In inflammation of bone, resolution must be accomplished if possible, and for this purpose local bleedings, or where the patient is of good constitution, both general and local bleeding must be had recourse to; followed by warm fomentations. Purgatives and antimonials, and indeed the strictest antiphlogistic treatment must be pursued. Free incisions into the superimposed parts are sometimes of great service in relieving the pain and tension, and abstracting blood, but the remedy is rather severe except in very violent cases. If, however, in spite of all our efforts to procure resolution, the diseased action progresses, and suppuration occurs, no time should be lost in evacuating the matter, otherwise its presence might give rise to absorption of the outer plate of the bone, and cause an ulceration which might degenerate into caries; and this remark applies with equal force to collections of matter, commencing in the soft parts over a bone, and which are bound down by dense fasciæ as they are then likely from pressure to cause absorption of the bone before the contained pus makes its way to the surface. The parts should be kept in a state of perfect rest from the first; no squeezing or bandaging, however, is admissible in these cases; all that is required being to place the limb in an easy position, and it should be moved as little as possible. In some cases where the inflammation is more chronic in its character, the use of counter-irritation, by means of the moxa, the actual cautery, or caustic issues, is of the greatest service.

When, however, ulceration of the soft parts has taken place, and the bone is seen or felt to be carious, the method of cure pointed out by nature is the one we ought to follow, namely, the removal of the diseased portion of bone; using means to procure reparation of the loss of substance, by granulation or effusion of new osseous matter from the vessels of the neighbouring bone.

The methods of treatment to procure these ends, are of two kinds; the mechanical removal of the diseased portions, or the application of certain medicinal agents to the affected part, which will entirely destroy its vitality; and at the same time excite the neighbouring parts to a greater degree of action so as to throw it off.

The first of these plans is effected by operative interference, and as it is out of the province of the domestic practitioner, we may merely state, that it is effected by removing the diseased portion of bone by means of saws, trephines, scoops, and forceps; in some cases of carious joints where the patient is sinking under the disease, by amputating the limb, or in others, where the disease is limited, by removing the carious ends of the bones forming the joint.

The second plan is effected by applying the actual or potential cautery to the diseased bone. Many prefer the actual cautery as being more speedy and effectual in destroying the diseased portion at once, but others, and we think with reason, consider the use of the red precipitate powder preferable, because the actual cautery is apt to deprive not only the diseased portion but also the neighbouring bone, of its vitality, so as sometimes to cause great loss of substance, or even give rise to extensive necrosis. The red precipitate powder is not so powerful as to produce such effects, whilst it is sufficient to cause exfoliation of the diseased portion. The method of applying it is simply to sprinkle it on the surface of the bone, or apply it by means of a hair pencil. In every case and in all stages of the disease, attention must be given to the constitution. We have already generally mentioned the treatment applicable to the inflammatory stage.

In regard to the constitutional treatment of the latter stages, we may briefly state that it consists in supporting the general strength, and relieving symptoms as they occur. In short, the treatment of hectic fever, combined, in the majority of cases where symptoms of a scrofulous constitution appear, with the plan of treatment directed under our article on *Scrofula.*

CHLORIDE OF LIME. This compound,

commonly called *oxymuriate of lime*, or *bleaching powder*, is a combination of chlorine and lime, and is usually prepared by exposing thin strata of slaked lime in fine powder to an atmosphere of chlorine. The gas is absorbed, and combines directly with the lime.

Chloride of lime, as sold in the shops, is a dry white powder, which smells faintly of chlorine and has a strong taste. It dissolves partially in water, and the solution possesses powerful bleaching properties, and contains both chlorine and lime; while the sediment is a hydrate of lime retaining a small proportion of chlorine.

Chloride of lime is used in medicine in two ways. First, in solution (varying in strength according to the particular case), as an application to foul sores, and as a gargle in some cases of syphilitic and scrofulous sore throat. Secondly, it is used for the purpose of disinfecting apartments, ships, and other places where the air is confined, or where there is any infectious disease; for this latter purpose it is used as follows. The chloride is mixed with a small quantity of water in a shallow bowl, so as to form a thick paste, and on this a quantity of sulphuric acid, diluted with an equal quantity of water, is poured, when the sulphuric acid combines with the lime, and the chlorine gas is disengaged. Great caution is requisite on the part of the person who adds the acid, to avoid inhaling the concentrated fumes of the chlorine gas as it is disengaged, which might cause alarming and even fatal consequences.

COLUMBA ROOT. This root is imported from Colombo in Ceylon, and is also obtained from some parts of South Africa.

It is imported in the form of circular brown knobs, wrinkled on their outer surface, yellowish within, and consisting of cortical, woody, and medullary layers. Its smell is aromatic, its taste pungent and very bitter. From Dr Percival's experiments, it appears that spirit of wine extracts its virtues in the greatest perfection. The watery infusion is more perishable than that of other bitters. The extract, made first by spirit, and then with water, and reduced to a pillular consistence, is found to be equal if not superior in efficacy to the powder.

In India it is much used in diseases attended with bilious symptoms, particularly in cholera; and is said to be very effectual in other cases of vomiting. It is often very useful in cases of dyspepsia. It does not appear to have the least heating quality, and therefore may be used in pulmonary consumption where tonics are required. It occasions no disturbance, and agrees very well with milk diet, as it abates flatulence, and is indisposed to acidity. The dose of the powder is from fifteen grains to half a dram, twice or thrice a day. See *Infusion*, and *Compound Powder of Columba*, in *Domestic Pharmacopeia*.

COTTON may be considered as an intermediate substance between animal wool and linen. It increases warmth, and rather promotes perspiration, while it parts with the perspired humours it imbibes more readily than linen. It is a species of garment which is cheap, and well calculated for various purposes. It seems to be peculiarly well adapted for the garments of women, or those who live much within doors, being light, pliable, and promotive of the excretion by the skin. In hot climates where perspiration abounds, cotton-cloth, for inner garments, is evidently superior, in point of wholesomeness, to linen. We cannot state our own opinions on this subject better, than by transcribing the words of Dr Johnson, whose great experience in the prevention and cure of the diseases of tropical climes, renders his remarks on the present point worthy of particular regard. He says:—

'When we enter the tropics, we must bid adieu to the luxury of linen—if what is both uncomfortable and unsafe, in those climates, can be styled a luxury. There are many substantial reasons for so doing. Cotton, from its slowness as a conductor of heat, is admirably adapted for the tropics. It affords a covering which is cooler than linen, inasmuch as it conducts more slowly the excess of external heat to our bodies; but this is not the only advantage, though a great one. When a vicissitude takes place, and the atmospherical temperature sinks suddenly far below that of the body, the cotton, still faithful to its trust, abstracts more slowly the heat from our bodies, and thus preserves a more steady equilibrium there. To all these must be added the facility with which it absorbs the perspiration; while linen would feel quite wet, and, during the exposure to a breeze under such circumstances, would often occasion a shiver, and be followed by dangerous consequences.'

Dr Johnson further observes, and very correctly, 'that woollen and cotton should be warmer than linen in low temperatures will be readily granted; but that they should be cooler in high temperatures will probably be much doubted. If the following easy experiment be tried, the result will decide the point in question. Let two beds be placed in the same room at Madras, we will say, when the thermometer stands at 90°; and let one be covered with a pair of blankets, the other with a pair of linen sheets, during the day. On removing both coverings in the evening, the bed on which were placed the blankets, will be found cool and pleasant; the other uncomfortably warm. The reason is obvious, the linen readily transmitted the heat of the atmosphere to all parts of the subjacent bed; the woollen, on the contrary as a non-conductor, prevented the bed from acquiring the atmospherical range of temperature, simply by

obstructing the transmission of heat from without.'

This proves the superiority of flannel to linen as an article of clothing in warm climates, under all circumstances, but it must not, therefore, be supposed, that flannel garments are equal to cotton in such countries. In general they are not, because they are heavier, and much too slow a conductor of heat from the body.

Besides, the spicula of flannel prove too irritating there, for common use, and increase the action of the perspiratory vessels on the surface, where our great object is to moderate that process. In some situations in India, where the atmospheric temperature is liable to great and sudden changes, as in Ceylon, Bombay, and Canton, flannel is a safer covering than cotton, and Dr Johnson says, is adopted in these places by many experienced and seasoned Europeans.

P

PHTHISIS, OR PULMONARY CONSUMPTION. The symptoms of this disease are exceedingly variable, and so is its duration. It may commence with a slight cough, not attributable to any particular cause, or may follow an acute disease, such as inflammation of the lungs; it may run its course in a month or two, or may be protracted for years.

The ordinary form not unfrequently sets in with a slight dry cough, which may last for some weeks, or months, without much aggravation, or the addition of any new symptom.

In other instances the cough may be severe from the very commencement, and accompanied by an expectoration of mucus, in greater or less quantity; or again, the patient having perceived merely some slight feelings of fulness or constriction in the chest, hemoptysis may set in, and recur at intervals of variable duration, constituting the first indication (though by no means a decisive one) of this formidable disease. Even in the early stage of the disease some degree of languor is felt; the respiration becomes hurried on making the slightest exertion, and the pulse is quick, and generally wiry and incompressible.

After some time the cough and expectoration increase, (the latter still resembling frothy mucus), the constitution begins to sympathize with the local affection, and that peculiar form of fever so generally known under the name of *hectic* is established. This resembles the remittent rather than the intermittent type, 'for in the clearest remissions of the hectic, there is still quickness of the pulse, so as to beat at least ten strokes more in a minute than it should do in a healthy state.' There are generally two exacerbations in the course of twenty-four hours; one towards noon, which is slight; the other commencing in the evening terminates towards morning. In hectic as in intermittent fevers, each fit consists of a cold, hot, and sweating stage; but though these are constant and regular intermittents, they present many varieties in hectic, both as to their relative duration and the method in which they appear. Thus, as Heberden has remarked, the fits of hectic seldom continue to return in the same manner for more than three or four times successively; the shivering is sometimes succeeded by perspiration, without any intervening heat; sometimes the fit begins with heat without any preceding cold, and even occasionally the patient experiences the chill or rigor without any subsequent hot or sweating stage. A regular fit usually commences about five or six o'clock in the evening, with a sense of chilliness, which continues for an hour or little more; after this the skin becomes warm, and the pulse accelerated, some degree of thirst and general uneasiness being at the same time complained of. At ten or eleven o'clock a sweat breaks out, either generally or only on some parts; after which the patient gets some sleep; but still the sweating continues, so that, on waking at five or six in the morning, he finds himself bathed in perspiration. The pulse is always quick, seldom being below 100, and more generally varying from 110 to 120, or even 140 beats in the minute.

In regular intermittents, it is generally observed that the urine is pale and turbid, (depositing a lateritious sediment) during the intermission of the fever; but in hectic it does not appear to be governed by any fixed rule; it may be turbid during the febrile attack, and clear in the intervals, or it may be pale during the exacerbation and turbid afterwards.

The digestive functions not unfrequently continue regular until the disease has made great progress; the muscular power, too, is by no means diminished in proportion to the degree of fever as in other affections; it is but little affected until emaciation and diarrhœa have set in. The head is little if at all affected, even in the worst cases, and, the intellects continue unimpaired to the last. Slight delirium, however, not unfrequently precedes death.

As to local pain in cases of phthisis, it can only be stated that many experience little or

none; some, however, complain of acute and darting pains at times, which appear to be caused by slight inflammations of the pleura or lungs, supervening at distant and variable intervals. When the sweats above noticed have continued for some time, the patient grows thin, and wastes away, gradually passing into a state of complete emaciation. This is accelerated by the supervention of another symptom, namely, diarrhœa, which frequently alternates with the sweats, the one ceasing as the other sets in. In females, the menses almost always cease when hectic fever is established, and occasionally even before that is the case, which has led to a popular opinion that the disease in such cases arises from the suppression. But although there is no doubt that such suppression by inducing debility, may predispose to pulmonary complaints, yet a knowledge of the pathology of phthisis enables us to trace it in general to a much more efficient cause; namely, the developement of tubercles in the substance of the lung. The expectoration in pulmonary consumption has been much attended to, with a view to derive from it some pathognomic or distinctive character of the disease, but no satisfactory result has yet been arrived at. It contains three distinct materials, mixed in various proportions, viz. mucus secreted from the lining membrane of the bronchus; tubercular matter more or less softened; and sometimes pus secreted by the sides of the tubercular cavities after their contents have been evacuated.

These cannot be distinguished with any precision, by a consideration of their physical characters, nor by chemical analysis. It is quite true that pus is more opaque and fœtid, and less tenacious, than mucus secreted during a catarrh; but it is by no means uncommon to find mucopurulent expectoration in the chronic form of catarrh.

When the hectic fever is established, the degree of emaciation which attends it will be found to keep pace with that of the evacuations above noticed, viz. the sweats, diarrhœa, and expectoration. The cheeks become hollow and sunken, the nose appearing on that account more prominent than natural; the cheek-bones also become more prominent, and the skin (which elsewhere is of an unnatural paleness, with occasionally a tinge of dusky yellow), presents on the middle of the side of the face a circumscribed patch of a bright, delicate, red colour. This is well known by the name of the hectic flush, and it is not unfrequently observed to be more strongly marked on one side than on the other. The appearance of the eyes is also peculiar; the conjunctiva retains its natural clearness, but acquires a delicate pearl blue tinge; the angles of the mouth are slightly retracted, giving to the countenance that peculiar sharp or pinched expression of features, called by medical men '*facies hippocratica;*' the shoulders are elevated, and as it were pointed; the ribs prominent, and the intercostal spaces (particularly on the upper and foreparts of the chest), depressed. The belly becomes flattened and retracted; the joints appear as if enlarged in consequencs of the diminution of the intervening soft parts of the limbs. Even the nails of the hands appear elongated and curved forwards, owing to the diminution of the pulpy ends of the fingers; the hair falls off; so that every attendant circumstance marks the diminution and gradual decay of the vital powers.

Many cases occur in which the existence of tubercles in the lungs is not even suspected, until the disease has made considerable progress, having been considered during its commencement and course as depending on some other cause. Common catarrh may simulate all the known characters of phthisis, so as to be scarcely distinguishable from it; and again, the catarrh which attends the development of tubercles may closely resemble ordinary bronchitis, and be treated for it, until the tubercles become so considerable in number, or so large, as to determine a new set of symptoms. This, however, would lead to no bad consequences practically; the proper treatment being much the same in both cases.

Again, when in persons of a scrofulous habit, scurvy or hepatitis become chronic, tubercles may be deposited to a considerable extent in the lungs without being suspected, the symptoms of the original disease in a manner masking that which is springing up, and even directing attention away from it. These latter examples are the cases which Laennec terms *Latent Phthisis.*

Treatment. Although it has been asserted that pulmonary consumption is curable, still such a happy event is scarcely to be expected after the disease is formed, and it is very possible that the supposed cures have been cases of chronic catarrh, and not the true tubercular phthisis. Much, however, may be done in warding off the disease for many years, and in retarding its progress after it is formed, by careful management of the patient. His diet should be moderate, and easily digestible and nourishing; his clothing light and warm; and his exercise moderate and never carried the length of fatigue; and above all, great attention should be paid to the state of the bowels, and the various secretions.

In the early stage of the disease much may be done to retard the disease, and relieve the symptoms. For example, where there is constant tickling cough with fixed pain in the chest, however slight the pain may be, or when spitting of blood takes place, and the pulse is wiry and incompressible, great benefit is derived from general bleeding followed by blisters, and counter-irritation, with the tartar emetic or

croton oil ointments (see *Domestic Pharmacopeia*) over the chest: all stimulating food or drink such as wine, ale, or porter, should be strictly forbidden, and the patient put upon a light and nutritious, but unstimulating diet; and milk diet is to be preferred, unless it happens to disagree with the individual. It should be given in small quantities, and may be diluted with a little warm water and sugar if found too heavy for the stomach. *Arrow root, Carragaheen* and *Iceland moss*, are also useful articles of diet in such cases. If the pulse is very quick, tincture of digitalis, given in doses of fifteen drops thrice a day in water, has been found of service in reducing the frequency of the pulse, by diminishing the force of the heart's action; but as it is apt to accumulate on the system, and sometimes produces unpleasant and even dangerous symptoms, we would not recommend its use, except under the directions of a professional person. The bowels should be kept gently open by some mild laxative, such as the colocynth and hyosciamus pill, (see *Domestic Pharmacopeia,*) and if the patient be decidedly of a scrofulous habit, the hydriodate of potass mixture (see *Pharmacopeia*) may be exhibited with advantage. It is in this early, or what may be termed premonitory stage of the disease, that removal to a steady mild climate is likely to be beneficial; for after the disease is somewhat advanced, much expense, and trouble, and fatigue to the patient may be spared by keeping him at home; for the change of climate is not likely to do good, but the fatigue, annoyances, and exposures inseparable from travelling, whether by sea or land, are more likely to exacerbate the disease, and hurry on the fatal termination.

In the more advanced stage, when the disease is formed, proper treatment is still of much use in retarding its progress, mitigating the patient's sufferings, and smoothing his passage into the tomb; every thing must be avoided which would hurry the circulation and respiration, and we should guard against the slightest exposure to cold or changes of temperature.

In describing the symptoms of the disease, we have stated that the pains occasionally complained of by consumptive patients appear to be owing to slight inflammatory attacks either of the pleura or substance of the lungs; and hence, when these symptoms appear, leeches or cupping should be had recourse to, to abstract blood, and this will generally be found to afford very great relief. Counter-irritation by blisters, issues, or irritating ointments should also be used, and in some cases, where the patient is too debilitated to bear bleeding, we must trust entirely to these to relieve the painful symptoms. Profuse sweats must be discouraged, but not suddenly checked, lest we bring on diarrhœa. The best treatment for this purpose is the exhibition of elixir of vitriol, given in small doses, and combined with some bitter infusion, such as infusion of quassia or gentian. If there be any tendency to diarrhœa, a few leeches applied to the abdomen will often check its progress, but counter-irritation by sinapisms, hot turpentine liniments, or tartar emetic ointment, is more generally applicable; along with the internal use of small doses of the compound powder of mercury, and chalk combined with small doses of Dover's powder. In some cases an occasional opiate is absolutely necessary to allay the violence of the pain, and the constant diarrhœa, but opium in this disease should always be exhibited with great caution. Throughout the whole disease, the troublesome symptom of constant tickling cough, dependent on the irritation of the lung, must be combated by the exhibition of cough mixture, and the best is the compound squill mixture (see *Domestic Pharmacopeia*). But great care must be taken that it is only used in small quantities, so as not to produce nausea from overloading the stomach. In many cases the simple plan of keeping a little bit of liquorice constantly in the mouth, so as to allow it to dissolve gradually, has been found to relieve the cough better than any other remedy; the occasional use of inhalations of the steam of vinegar and warm water, is also highly serviceable in allaying the tickling cough.

As we observed at the commencement of this article, the duration of phthisis is very variable; generally speaking, however, few survive above a year or a year and a half; most perish within nine or ten months from the time that the disease is decidedly formed, and it is stated that females die more quickly than men; but this statement has probably arisen from the rapid progress of the disease frequently noticed in phthisical females after child-birth. See *Spitting of Blood*, and *Bronchitis*.

POULTICE. Poultices are relaxant or emollient local remedies, applied for the purpose of procuring resolution in cases of local inflammation, by soothing and allaying the irritation by the application of heat and moisture, and also to hasten the maturation or ripening of phlegmonous abscesses.

As the beneficial effects of poultices depend on the heat and moisture, we are frequently enabled to dispense with their use, by applying a thick fold of lint, dipt in warm water, over the part, and covering it with oiled silk, which is a lighter and more elegant application than the ordinary poultice. But as poultices are frequently required, we have given directions in the *Pharmacopeia* for preparing those which are most useful. See *Pharmacopeia*.

S

SCOTCH MINERAL WATERS. In our article on *Mineral Waters* we gave a classification of the most esteemed English springs, and we now subjoin an analysis of the principal Scotch mineral waters from the latest authorities. The principal saline springs are *Airthrey*, *Dumblane*, *Innerleithen*, and *Pitkaithley*.

At *Airthrey* there are six springs, containing all of them the same saline constituents, but differing a good deal in their relative strengths, the lowest specific gravity of the water being 1·00346, and the highest 1·00984. The water of them all is transparent and colourless, and without any perceptible smell, but having a sensibly bitter and unpleasant taste. The preliminary trials showed the presence of the following constituents in the water. 1. Muriatic Acid; 2. Sulphuric Acid; 3. Lime; 4. Magnesia; 5. Soda; and Dr T. conceives that the saline constituents are probably united together in the following manner:

Common salt,	6·000 grs.
Muriate of lime,	5·826 —
Sulphate of lime,	0·716 —
Muriate of magnesia,	0·086 —
	12·628 —

This result professor Thomson considers as nearest the truth, as the water contains no excess either of acid or base.

The following table by Dr T. is published in the Glasgow Medical Journal, and shows the saline contents of an imperial gallon of 277·274 cubic inches of the water of the weakest and strongest spring:

No. 1.	Common salt,	423·843 grs.
	Muriate of lime,	411·551 —
	Sulphate of lime,	50·578 —
	Muriate of magnesia,	6·075 —
		892·047 —
No. 4, or weakest spring, contains		
	Common salt,	135·792 grs.
	Muriate of lime,	122·280 —
	Sulphate of lime,	9·798 —
	Muriate of magnesia,	9·546 —
		277·416 —

The water of this spring, however, although yielding less saline contents, is yet stronger in its proportion of muriate of magnesia than even the first and some other of the Nos.

Dumblane Water. Here there are two springs, a north and a south, and the sensible qualities of the water, as to appearance, taste, and absence of smell, are the same, or nearly so, as those of Airthrey, containing the same ingredients; but it appears that Dumblane water contains a smaller proportion of muriate of lime than any of the springs at Airthrey, except No. 4, and that two of the Airthrey springs, Nos. 3 and 4, are weaker than Dumblane. while the other four are much stronger. The late Dr Murray's analysis of the Dumblane water, however, differs somewhat from that of Dr Thomson's.

According to Dr Murray, a wine gallon of Dumblane water contains

Common salt,	192 grs.
Muriate of lime,	144 —
Sulphate of lime,	28 —
Carbonate of lime,	4 —
Oxide of iron,	1·36
	369·36

Dr Thomson's analysis of a wine gallon shows the following results:

Common salt,	267·458 grs.
Muriate of lime,	145·296 —
Sulphate of lime,	40·456 —
Muriate of magnesia,	2·008 —
	455·218 —

On this difference Dr T. observes, that as the specific gravity of the water analysed by him was higher than that of the water analysed by Dr Murray, that he was prepared to expect a greater weight of saline constituents. It would appear that the strength of the water varies a good deal, probably according to the dryness or moisture of the weather. But Dr T. considers even the difference between the results much greater than can be ascribed to this cause alone, and considers it rather to have arisen from the different methods of analysis employed.

As for the carbonate of lime, and oxide of iron, which Dr Murray detected in this water, Dr T. could find no traces of either, though he was at some pains to look for them, and if they exist at all, Dr T. conceives it can only be in a state of suspension, for they had disappeared before the water had come into his possession. Dr Murray did not detect the presence of magnesia in this water, because he did not think of concentrating it by evaporation, and then examining it by re-agents, for its presence cannot be detected in the water as it flows from the spring.

Innerleithen. There are two streams at Innerleithen, both of which were analysed by Dr Fyffe in 1822.

No. 1, which is the weakest, contains thirty-six grains of saline matter in each quart bottle.

No. 1.	Carbonate of magnesia,	5·3 grs.
	Muriate of lime,	9·5 —
	Muriate of soda,	21·2 —
		36 —
No. 2.	Carbonate of magnesia,	10·2 grs.
	Muriate of lime,	19·4 —
	Muriate of soda,	31 —
		60·6 —

The large quantity of the carbonate of magnesia held in solution in these waters, renders

it probable that it must contain sufficient carbonic acid to constitute it an acidulous mineral water.

Pitkaithley. This has been the longest known, and most celebrated of all the mineral waters of Scotland, and is similar to Airthrey and Dumblane in its taste and characters; but is weaker than even the weakest of these mineral springs, except the spring at Airthrey, which we have marked No. 4.

According to Dr Murray's analysis, an imperial gallon yields

Common salt,	128·674 grs.
Muriate of lime,	187·150 —
Sulphate of lime,	8·641 —
Carbonate of lime,	4·801 —
	329·266 —

The proportion of muriate of lime contained in this water with that of common salt, is greater than either in Dunblane or Airthrey water.

Medicinal qualities of these Waters. To avoid repetition, we have classed these waters together, seeing their chemical constituents are the same, however differing in the proportions of the particular ingredients. Where the muriate of lime predominates, there is no doubt the water will be found more efficacious in scrofulous and scorbutic affections, and, of course, in all glandular indurations; but in cases of indigestion, we would certainly prefer the waters where sulphate of lime and muriate of magnesia are most prominent. There are, however, none of these springs which may not be used as valuable auxiliaries in the alleviation and cure of the numerous diseases which assail the chylopœtic viscera, or are connected with a ruined or half ruined constitution. When we say ruined, we mean a constitution that has been subjected to the influence of a tropical or unhealthy climate; or to the equally baleful influences of too liberal and injudicious sacrifices at the shrines of Bacchus and Venus; and the no less debilitating and murderous effects of empiricism and luxury —in all such cases the springs of Airthrey, Dumblane, and Pitkaithley, are truly useful. The dose, however, must be regulated by the circumstances of the case; but we would advise, that in all cases in which these waters are used in connection with an alterative course of mercury, the dose should be a large tea cupful, immersed for a few minutes in warm water till the chill is taken off; such a dose taken in the morning, after a mercurial pill, or even a Plummer's pill taken the preceding evening, will effect great good; and three half pints, prepared in the same manner, during the day-light part of the twenty-four hours, will effect wonders. In other cases larger doses may be indulged in.

Saline ingredients, such as enter into the composition of these waters, whether of Airthrey, Dumblane, or Pitkaithley, exert such an influence on the constitution, that we cannot omit this very favourable opportunity of recommending them in all cases in which saline medicines are employed.

The principal Scotch chalybeate spring is Hartfell near Moffat, which is a strong vitriolated chalybeate. The imperial gallon of this water contains

Sulphate of iron,	591·025 grs.
——— of alum,	12·721 —
Sulphuric acid in excess,	5·202 —
	708·948 —

The water of this spring is highly serviceable in all cases where chalybeates are recommended.

Sulphuretted waters. The principal sulphuretted springs in Scotland are, the Moffat spring, and St Bernard's well, on the Water of Leith, near Edinburgh.

Moffat sulphuretted spring. Each wine pint contains, according to Garnet,

Nitrogen,	0·5	cubic inches of gas.
Carbonic acid,	0·6	— —
Sulphuretted hydrogen,	1·2	— —
Muriate of soda,	4·5 grs.	

St Bernard's well, according to Mr Kemp's analysis, contains

> Sulphates and bicarbonates of lime, and magnesia along with the muriates and chlorides of these earths, also the hydrosulphurets of lime and magnesia, and a trace of free sulphuretted hydrogen gas.

So that it closely resembles the Harrowgate and Moffat springs in its leading qualities.

These waters are of great use in obstinate cutaneous affections.

DOMESTIC PHARMACOPEIA.

BEFORE entering on this part of our work, we think it necessary to explain the reasons which induced us to append a collection of medical recipes, separate from, instead of inserting them along with, the various diseases for which they are used as remedies. They were briefly the following:

First. The same preparations being frequently used in different diseases, would have required to have been prescribed under each of these, thus giving rise to frequent repetition of the same recipe; consequently, either encroaching on more useful matter, or else needlessly extending the limits of the work; whereas by adopting the present plan, the reader, after being directed in what dose and manner a certain medicine is to be exhibited in any particular disease, is then merely referred to the Pharmacopeia for the formula or recipe for its preparation, and thus the frequent repetition of the recipe is obviated.

Secondly. A domestic pharmacopeia, containing a judicious selection of formulæ for preparing and compounding some of the most generally useful remedies, is in itself valuable. For although there can be no doubt that it is better for those who live in towns and cities to have their medicines compounded by a regular apothecary, it should be recollected, that works like the present are especially intended for those who cannot obtain even medical assistance except from a distance, and who living, perhaps, in remote country districts, or on board ship, where there are no such conveniences as apothecaries' shops, are obliged to keep their own medicine chest; and as most of the compound medicines, such as pills, infusions, mixtures, &c. deteriorate by keeping, it becomes highly desirable, if not absolutely requisite, that they should be able to compound and prepare such medicines for themselves.

Having thus explained to our readers, satisfactorily we trust, our reasons for adopting the present plan of a Domestic Pharmacopeia, we shall proceed to treat of the various objects contained under that department, in the following order:

1st. A brief enumeration of the apparatus required as accompaniments to the domestic medicine chest.

2ndly. The description of some of the more simple processes of pharmacy required in compounding medicines.

3d. The Pharmacopeia or Formulary, containing recipes for the various preparations, in the following order.

I. Infusions.
II. Decoctions.
III. Medicated honeys or oxymels.
IV. Mixtures, including gargles and clysters.
V. Medicated vinegars.
VI. Tinctures.
VII. Medicated wines.
VIII. Powders.
IX. Conserves, electuaries, &c.
X. Pills.
XI. Cataplasms or poultices.
XII. Cerates, liniments, and ointments.

4th. A Table for proportioning the doses of medicines, according to the age of the patient.

First, then, of the articles which compose the apparatus required for the use of the domestic apothecary.

These are, 1. Box, containing small scales, and sets of weights. These weights being the same as those used by apothecaries, and marked in a particular manner, require some notice. Those generally put up in the small sets, run from grains to drams; the grain weights are thin pieces of brass, marked with a number of small round stamps, corresponding to the number of grains which each weighs. The larger weights are scruples and drams, the figure ℈ denoting a scruple, and the figure ʒ a dram; each scruple weighs twenty grains, and each dram three scruples or sixty grains. When the letters *ss* are placed after the figure ℈ or ʒ, they denote half the weight, that is, either half a scruple, or half a dram, according to the preceding figure; thus ℈ *ss* would denote half a scruple, or ℈ j *ss* a scruple and a half. The general table of these weights may be stated as follows:

	Medical signs.
Twenty grains make one scruple,	℈ j
Three scruples or sixty grains, one dram,	ʒ j
Eight drams, or 480 grains, one ounce,	℥ j or oz.
Twelve ounces, one pound, . .	lb.

The set of weights commonly sold along with the small scales seldom contains more than the grain weights, from one to six grains, together with the half scruple, scruple, two scruples, half dram, dram, and two dram weights; so that when it is wished to weigh a larger quantity, it must be done by repeated weighing. We have been thus particular in explaining this apparently simple part of the apparatus, in order to prevent the slightest chance of mistake in using these weights; for ignorance, carelessness, or inattention in this respect, when compounding active medicines, might be productive of serious, or even fatal consequences. As regards the scales, care should be taken to ascertain that they are properly adjusted, by trying them before beginning to weigh any substance. It is advisable to have one of the scales made so as to shift for the purpose of using a glass scale when weighing substances which would act on the metal scale. Rubbing, or polishing the metal scales, or cleaning them with acids, is improper, as we may thereby destroy the equality of balance between the two scales; and therefore the scale in which the substance has been weighed, should merely be cleaned with a little water, and dried thoroughly, without rubbing or polishing it.

2. The next articles of apparatus, are the graduated glass measures for measuring fluids; of these two are required, one for measuring drams and ounces, the other smaller, graduated for measuring minims or drops;

the fluid measure is nearly the same as the weights, the drops being equivalent to the grains; thus sixty drops make a dram, eight drams an ounce, and so on. We trust we need scarcely say that these measures require to be kept exceedingly clean.

3. Two small mortars and pestles; one of stout Wedgewood ware or brass, the other smaller, of glass. The former is of use in mixing coarse powders, bruising roots, or making up pill masses, whilst the glass mortar is used for finer powders, or rubbing up medicines which stain or act upon the Wedgewood or metal mortar, such as iodine, corrosive sublimate, &c.

4th. A small tile for mixing up small powders, pill masses, or boluses, where we would lose part of the substance by mixing it in the larger mortar.

5th. Two spatulæ, one stiff, and one elastic, for mixing up powders, pills, ointments, &c.

6th. Glass and tin funnels of different sizes.

7th. A glass rod for mixing acids with other fluids, or for applying strong acids to the surface of ulcers, as on the tonsils and elsewhere.

The pharmaceutical processes which the domestic apothecary may be called upon to perform, are neither complicated nor numerous. They may be concisely classed as follows.

1. Mechanical mixture. This process is employed to mingle bodies of all forms of aggregation with others of the same form, or of different forms; for example:

a. Of dry powders with each other, by stirring, beating, and rubbing, or what is technically termed trituration.

b. Of dry with soft substances, as in the formation of pill masses, boluses, &c., by beating and kneading.

c. Of soft substances with each other; as for example, two soft extracts or ointments, by beating, kneading, or rubbing.

d. Of dry with fluid, diffusion or suspension, by gradually adding the fluid, and rubbing.

e. Of soft with fluid, in the same manner.

f. Of fluid with fluid, by shaking them together in a phial.

2. Mechanical separation. By this process we are frequently able to separate from each other substances only mechanically mingled.

Solids from solids; as for instance, finer from coarser powder from the same kind, by sifting. This process is performed with sieves, varying in degrees of fineness, according to the purpose for which they are used.

Solids from fluids.

a. By *deposition* and *decantation*, that is, allowing the insoluble part or sediment to subside, and then pouring cautiously off the clear fluid. This plan is usually employed where the liquid would be deteriorated by exposure to air during filtration; as for example, lime water.

b. By *filtration*, in which the clear fluid passes through the filter, whilst the powder is deposited upon it.

Filters are composed of various materials.

The metallic filters are strainers made of iron tinplate, or silver, or of wire woven into cloth; they are only used for filtering coarse substances, such as decoctions of woods.

The earthy materials used for filtering are sand, porous stone, and Wedgewood ware strainers. They are seldom used for medicine; the common water filter is an example of this class.

The filters most generally used for medicinal substances are composed of tow, wool, cotton, muslin, and flannel for the coarser purposes, and of unsized paper, folded in the form of a cone, for those medicines where the impurities are so very subtile that they would pass through the coarser filters.

Clarification is a species of filtration. It is performed either without addition, where the liquor contains a principle coagulable by heat, and which on being heated sufficiently, separates, and carries up all impurities with it to the surface, in the form of *scum*, which can then be skimmed off, or by adding coagulable substances, such as the whites of eggs, by which means the process above described artificially is accomplished; every housewife is familiar with this process in clarifying syrups, coffee, &c.

3. *Solution* is the diminution of aggregation in any solid or fluid substance, in consequence of its entering into chemical combination. The substance, whether solid, as sugar, or fluid, as volatile oil, whose aggregation is lessened, is termed the *solvend;* whilst the liquid by whose agency the solution is effected, is termed the *menstruum* or *solvent*, as water, or alcohol. The best example of a solution is that of a lump of sugar dissolved in water, in which every trace of the lump of sugar is lost, but where its taste can be felt, and its presence detected by chemical tests in the most minute portion of the solution, showing the intimate combination of its particles with those of the *solvent.*

4. *Infusion* is employed to extract the virtues of aromatic and volatile substances, which would be dissipated by decoction, and injured by maceration, and to separate substances easy of solution from others which are less soluble. The process consists in pouring the menstruum upon the substances to be infused, placed in a proper vessel, covering it up, agitating it freely, and then straining, or decanting off the clear liquor or infusion. The well known infusion of tea affords an example of this process.

Watery infusions are very apt to spoil, and are therefore generally extemporaneous preparations. In some cases a small proportion of spirit is added to make them keep longer.

5. *Maceration* differs from infusion, in being continued for a longer time, and can only be employed for substances which do not easily ferment, or spoil.

6. *Digestion* differs from maceration only in the activity of the menstruum being promoted by a gentle degree of heat, from 60° to 90° Fahrenheit. It is commonly performed by keeping the vessel, containing the tincture, in a heated room, or near a fire. It is seldom employed, except for tinctures.

7. *Decoction* is performed by subjecting the substances to a degree of heat sufficient to boil the menstruum. It can only be employed with advantage for extracting principles which are not volatile, and from substances whose texture is so dense and compact, as to resist the less active methods of solution. Many decoctions become turbid on cooling; and it is important to know the nature of the deposit, as in some cases it is directed to be removed, and at others to be retained.

Finally, all astringent decoctions, such as Peruvian, or oak bark, and the like, should be boiled in glazed earthenware vessels, and not in iron or tin pans, as they act upon the metal, or rather the metal and decoction re-act upon each other, and the decoction is destroyed, or at least impaired.

II.—FORMULARY.

I.—INFUSIONS.

Infusion of Chamomile or Chamomile Tea.

Take of Scotch chamomile flowers, two drams.

— Boiling water, eight ounces.

Macerate for five hours in a slightly covered vessel, and strain through tow.

This is an excellent stomachic in small doses; as for

example, half a wine glassful twice a-day. In large doses it is often used as an emetic, in which case it should be administered when lukewarm.

Compound Infusion of Columba.

Take of Columba root sliced, one dram.
— Orange peel dried, two drams.
— Cloves bruised, half a dram.
— Boiling water, eight ounces.

Macerate for two hours in a covered vessel, and strain.

This is a stomachic bitter infusion, and may be given in all cases where tonics are indicated, in doses of a small wine-glassful, twice or thrice a-day. It should, however, only be prepared in small quantities, as it does not keep well.

Infusion of Peruvian Bark (without heat).

Take of Peruvian bark in coarse powder, one ounce.
— Cold water, twelve ounces.

Rub up the bark in a mortar with a little of the water, and then add the remainder of the water during the rubbing, then add diluted sulphuric acid, one dram.

This is a very elegant preparation of Peruvian barks, and one which is well adapted for weak and delicate stomachs. The use of quinine, however, has now nearly superseded all other preparations of cinchona bark.

Compound Infusion of Gentian Root.

Take of Gentian root sliced, half an ounce.
— Dried peel of Seville oranges, bruised,
— Coriander seeds, bruised, of each one dram.
— Brandy, or good whiskey, three ounces.
— Boiling water, twelve ounces.

First pour on the spirits over the roots, and three hours thereafter add the water. Macerate for twelve hours, and strain.

This is an excellent stomachic and tonic bitter infusion, and may be given in the same doses as the infusion of columba root. It is also an excellent addition to saline laxative draughts, in bilious complaints.

Infusion of Linseed.

Take of Linseed, one ounce.
— Liquorice root, bruised, two drams.
— Boiling water, two pounds.

Digest for four hours in a covered vessel, and strain.

This preparation is well known by the name of linseed tea. It is a mucilaginous emollient drink, and is much used in cases of clap, strangury, and in chest complaints. Prepared without the addition of liquorice, it is a useful menstruum for other medicinal substances in forming clysters, being far preferable to oat gruel, which is generally used.

Infusion of Quassia.

Take of Quassia shavings, half a dram.
— Boiling water, eight ounces.

Digest for two hours, and strain. When cold add half a dram of diluted sulphuric acid.

This is one of the strongest and purest bitters, and is an excellent tonic medicine, and may be used in many cases, in place of quinine.

Infusion of Roses.

Take of The petals of red roses, dried, one ounce.
— Boiling water, two pounds.
— Diluted sulphuric acid, half an ounce.
— White sugar, one ounce.

Digest the rose leaves with the boiling water for four hours, in an earthen vessel (not glazed with lead) then add the acid, strain the infusion, and dissolve the sugar in it.

This is a very elegant medicine, and forms a very grateful vehicle for more active remedies in cases of internal bleeding. It is useful in all cases requiring mild refrigerants and sub-astringents; it also forms an excellent gargle in cases of relaxed sore throats.

Infusion of Senna.

Take of Senna leaves, six drams.
— Ginger root, one scruple.
— Coriander seed, bruised, half a dram.
— Boiling water, nine ounces.

Macerate for four hours, in a close covered earthen tea-pot, occasionally shaking the infusion, then strain; about an ounce of the tincture of senna or some spirits should be added, if it is intended to be kept above two days.

This is a well known and excellent purgative infusion. The compound infusion is made by adding, before the water is poured off, one ounce of tamarinds, and half an ounce of brown sugar. In this latter form it is a mild and useful purge, excellently suited for delicate stomachs and inflammatory diseases. The taste of the senna is well covered by the acidity of the tamarinds.

Mucilage of Gum Arabic.

Take of Picked gum Arabic, two ounces.
— Boiling water, four ounces.

Macerate in a covered vessel, till the gum be dissolved, frequently stirring the infusion, and strain through muslin. Mucilage is used in making pill masses, and in many mixtures.

II.—DECOCTIONS.

Decoction of Mezereon.

Take of The bark of mezereon, two drams.
— Liquorice root, bruised, half an ounce.
— Water, three pounds.

Boil with a gentle heat down to two pounds, and strain the decoction.

This decoction acts principally as a stimulant diaphoretic. From four to eight ounces may be given four times a day, in obstinate syphiloid and rheumatic affections.

Compound Decoction of Guiacum.

Take of Guiac raspings, one ounce and a half.
— Raisins, one ounce.
— Sassafras root, sliced,
— Liquorice root, of each half an ounce.
— Water, five pounds.

Boil over a gentle fire, down to two pounds and a half, and strain.

This is also a stimulating diaphoretic, and is useful in rheumatic and cutaneous affections. It may be given alone, in doses of four ounces, thrice a day, or used to assist the effects of a course of mercurial, or antimonial alteratives; the patient in either case keeping warm, in order to promote the operation of the medicine.

Decoction of Poppies.

Take of White poppy heads, sliced, four ounces.
— Water, four pints. (English).

Boil for quarter of an hour, and strain.

This is very often used as an anodyne fomentation. But a more useful one may be formed by boiling half an ounce of opium in four pints of water.

Decoction of Oak Bark.

Take of Oak bark, bruised, one ounce.
— Water, two pounds, and a half.

Boil in an earthen vessel, down to sixteen ounces, and strain.

This is a very powerful astringent, and may be used

in all cases where astringents are indicated. It is particularly useful as a gargle in cases of sore throat and hoarseness, attended with relaxation of the parts, and also as an injection in some cases of whites and relaxation of the vagina in females.

Compound Decoction of Sarsaparilla.

Take of Sarsaparilla, sliced, an ounce and a half.
— Shavings of guiac wood,
— Bark of the root of sassafras,
— Liquorice root, bruised, of each two drams.
— Bark of mezereon root, one dram.
— Boiling water, three pints.

Macerate in the boiling water, with a gentle heat, for six hours, the sarsaparilla and guiac shavings; then boil it down to one half, adding the sassafras, liquorice, and mezereon, and strain the decoction.

This decoction is said to be similar to the once famed *Lisbon Diet Drink*. It is used in cases of syphilis, rheumatism, and cutaneous affections. For more particular information regarding this, and other preparation of sarsaparilla, see the article in the body of the work.

Decoction of Elm.

Take of The fresh inner bark of elm, bruised, four ounces.
— Water, four pounds.

Boil down to two pints, and a half.

This decoction is highly praised by some authors, as being useful in cutaneous affections.

III.—MEDICATED HONEYS OR OXYMELS.

Simple Oxymel.

Take of Honey, half a pound.
— Vinegar, four ounces.

Boil in a glass or earthenware vessel, with a gentle heat to the consistency of a syrup, and skim it when cool.

This is a useful and favourite domestic remedy in colds, and slight sore throats.

Oxymel of Squills.

Take of Clarified honey, nine ounces.
— Vinegar of squills, four ounces.

Boil in the same manner, and to the same thickness as the simple oxymel.

This preparation is aperient and detergent, but is principally useful as an expectorant, and is of great service in cases of cough, asthma, bronchitis, &c.

It is generally given in doses of two or three drams in some aromatic water, such as cinnamon or peppermint, to prevent the nausea it would otherwise be apt to produce. When given along with the mixture of gum ammoniac, in the proportion of one to four of the mixture, it forms an excellent cough mixture, which may be given in doses of a desert spoonful, four or five times a day.

Honey of Borax.

Take of Subborate of soda, (Borax), powdered, one dram.
— Clarified honey, one ounce, mix carefully.

This is much employed as a detergent in apthous ulcerations of the mouth, both in children and adults.

IV.—MIXTURES, INCLUDING GARGLES, LOTIONS, AND CLYSTERS.

Antimonial Mixture, or Nauseating Mixture.

Take of Tartar emetic, two grains.
Dissolve in water, six ounces.

A table spoonful to be given every two hours, unless vomiting be produced, when the dose must be diminished or intermitted.

This preparation is given to produce and keep up a degree of sickness, and so lower the heart's action. Its use is indicated after bleeding in febrile and inflammatory complaints, and in some cases fifty drops of solution of morphia may be added to the whole quantity of the mixture. It also acts as a diaphoretic.

Camphor Mixture.

Take of Camphor, half a dram.
— Rectified spirit, twenty drops.
— Water, one pint.

First rub down the camphor with the spirit, then add the water, gradually continuing the rubbing, and strain through tow or muslin.

This mixture may be given in doses of a table spoonful, every three hours in cases of typhoid-fever; it is also highly serviceable in cases of strangury, irritable bladder, &c.

Mixture of Gum Ammoniac.

Take of Gum ammoniac, two drams.
— Water, half a pint.

Rub the ammoniac with the water gradually added to it, and continue the rubbing for some time, until they are well mixed, and a milky emulsion is produced, then strain through tow.

This preparation is useful as an expectorant, and may be given in doses of a table spoonful three or four times a day. Oxymel of squills forms a useful addition to it, in cases of dry cough.

Chalk Mixture.

Take of Prepared chalk, one dram.
— Refined sugar, half a dram.
— Mucilage of gum Arabic, two drams.

Rub these ingredients well together, and then add gradually,

Water, four ounces.
Spirit of cinnamon, or peppermint, two drams.

This is an antacid mixture, and is frequently given in the bowel complaints of children. The dose for a child of a year old is a tea-spoonful three or four times a day. The dose for an adult is a large table spoonful, four or five times a day, or oftener, according to circumstances.

The astringent catechu mixture which we have recommended in the article on diarrhœa, is prepared by adding a dram of the electuary of catechu, and fifty drops of tincture of kino to the chalk mixture.

Compound iron mixture. (See *Griffith's Mixture* in the body of the work).

Squill Mixture.

Take of English paregoric, three drams.
— Vinegar of squills, one ounce.
— Syrup, or molasses, two ounces.
— Tincture of tolu, one dram.
— Mucilage of gum Arabic, four ounces.

Shake these ingredients well together.

The dose of this cough mixture, for an adult, is a dessert spoonful four or five times a day, or when the cough is very troublesome.

Hydriodate of Potass, and Iodine Mixture.

Take of Hydriodate of potass, one scruple and four grains.
— Iodine, eight grains.
— Water, four ounces.

Dissolve, by rubbing the salts together in a glass mortar, with the water added gradually.

This is one of the best forms of preparing iodine for internal use, a table spoonful of the mixture, with an equal quantity of infusion of colomba, or gentian, may

be given twice a day, in those cases where the use of iodine is indicated, as scrofula, syphilis, &c.

GARGLES.

Gargle for foul ulcerated sore throat.

Take of Chloride of lime one scruple.
— Water, eight ounces.

Rub the chloride of lime with the water, added gradually, then strain quickly through tow.

Gargle.

Take of Nitro-muriatic acid, one dram.
— Water, twelve ounces.

Shake them well together in a bottle.

Either of these gargles will be found serviceable in foul ulcers of the throat. Infusion of roses may be used instead of plain water with advantage, as may also the addition of a dram of tincture of myrrh.

Very useful astringent gargles may be prepared by adding a dram of alum to a pint of the decoction of oak-bark.

LOTIONS OR WASHES.

Red Lotion.

Take of Sulphate of zinc, sixteen grains.
— Water, four ounces.
— Spirit of rosemary, two drams.
— Compound spirit of lavender, twenty drops.

This forms a useful stimulating lotion, and will be found frequently directed as an application throughout the work.

Black Wash.

Take of Calomel, fifteen grains.
— Limewater, two ounces. Mix.

This is also a stimulating wash, and is a frequent application to venereal, and other foul sores.

Sulphate of Zinc Lotion.

Take of Sulphate of zinc, eight grains.
— Water, four ounces.
— Diluted sulphate of acid, eight drops.

Dissolve, and then filter through coarse paper.

This is used as a stimulating astringent lotion, and as an injection into the urethra in cases of gleet, and also as an eye-wash in cases of chronic ophthalmia, or inflammation of the eyes.

Compound Alum, and Zinc Lotion.

Take of Alum, sulphate of zinc, each one dram.
— Boiling water, eight ounces.

Dissolve the alum and zinc in the water, and then filter through paper.

This is used for similar purposes as the last; but is much stronger, and therefore in such cases requires in general to be diluted at first. It is also used as an application to some cutaneous eruptions, the part being bathed with it warm, three or four times a day. It is likewise used as an injection in fluor albus.

Solution of the Acetate of Zinc.

Take of Sulphate of zinc, one dram.
— Sugar of lead, four scruples.
— Pure water, twenty ounces.

Dissolve each of the salts separately in ten ounces of water. Mix the solutions, and when the sediment has subsided, filter the liquor.

This preparation is deservedly held in high estimation as an excellent astringent eye-wash and injection.

Sugar of Lead Lotion.

Take of Sugar of lead, two scruples.
— Water, eight ounces.
— Vinegar, forty drops. Mix.

This lotion is used for the same purposes as the last. When intended for a lotion to bruises and inflammatory swellings, it should be used warm, and may be made stronger, and combined with laudanum.

CLYSTERS.

Common Laxative Clyster.

Take of Epsom salts, half an ounce.
— Olive, oil, (butter or lard), two ounces.
— Thin linseed tea, or barley water, a pint,
— (English). Mix them.

The stimulating clysters made with turpentine or asafœtida are prepared by adding a table spoonful of spirits of turpentine, or of the tincture of asafœtida to eight ounces of the common laxative clyster.

Opiate Clyster.

Take of Laudanum, sixty drops.
— Thin starch, three ounces.

Mix well together, and inject gently with a small syringe.

This injection of course is only for an adult, and is made in small bulk, that it may be easily retained. See article on *Enemata* or *Clysters*.

V.—MEDICATED VINEGARS.

Vinegar of Squills.

Take of Dried squills, half an ounce.
— Vinegar, seven ounces, and a half.
— Spirits, six drams.

Macerate for seven days, press out the liquor, and filter through paper.

In small doses, this vinegar is a stimulant expectorant, and in larger doses emetic. It is generally used along with other substances. (*Squill Mixture*, and *Oxymel of Squills* in Pharmacopeia).

VI.—TINCTURES.

Tinctures being prepared with spirits, will keep for any length of time, and as they are difficult of preparation, it is better that they should be brought from the regular apothecary. Under this department we shall merely give the formula for preparing *laudanum* and *opodeldoc*, both of which being often used in large quantities, might render it necessary for the domestic practitioner to prepare them himself. We shall also give a list of those tinctures, which we consider necessary to be kept in the domestic medicine chest.

Laudanum.

Take of Opium, one ounce.
— Whiskey, or brandy, twelve ounces, (by measure).

Digest for seven days with gentle heat, then filter through paper.

For the general uses of this well known preparation, we must refer our readers to the article *Opium*.

Tincture of Soap, or Opodeldoc.

Take of Hard soap, in shavings, two ounces.
— Soft soap, one ounce.
— Camphor, one ounce.
— Oil of rosemary, two drams.
— Strong spirits, or rum, an English pint.

Digest for ten days, frequently shaking the tincture. The camphor should be dissolved in a part of the spirits before being added.

The anodyne liniment, or opodeldoc, is made by adding an *ounce* of opium to the above. Both preparations are used as liniments in cases of sprains, bruises, and rheumatic pains.

Tinctures.

List of tinctures required for the domestic medicine chest, (they should be kept in stoppered phials).

Tincture or spirit of camphor.

Tincture of Cantharides or Spanish flies.
— Asafœtida.
— Myrrh.
— Opium, (laudanum).
— Camphorated, of opium, English
— paregoric.
— Soap, or opodeldoc.
— Tolu.
— Ammoniated, of valerian.
Compound spirit of lavender.
Spirit of cinnamon.
— Rosemary.

VII.—MEDICATED WINES.

Ipecacuanha Wine.

Take of Powder of ipecacuanha, half an ounce.
— White wine, seven ounces and a half.
Digest for seven days and filter.

This is an excellent emetic for young children; the dose is a small tea-spoonful in luke warm water, every ten minutes till vomiting be produced. It is also a useful diaphoretic and expectorant for adults.

Opium Wine.

Take of Opium, two drams.
— Cinnamon, bruised,
— Cloves, of each, fifteen grains.
— Sherry wine, four ounces.
Macerate for eight days and filter.

This is recommended as one of the best preparations of opium, as an application to the eyes in cases of chronic inflammation. One drop may be put into the eye, or what is better, ten or fifteen drops may be added to the ounce of the solution of acetate of zinc, and used as an eyewash.

VIII.—POWDERS.

Compound Bismuth Powders, or Compound Powder of Columba.

Take of Oxide of bismuth, three grains.
— Powder of columba, seven grains. Mix.
This forms one dose, and two such may be given twice a day.

Or the following.

Take of Oxide of bismuth, three grains.
— Powder of gum tragacanth, seven grains.
Mix, and form one powder.

Both these are formulæ for antacid powders, and are useful in many cases of dyspepsia, attended with pain and vomiting after meals, and watery acid eructations, and in heart-burn and water-brash.

Compound Powder of Magnesia and Rhubarb.

Take of Best India rhubarb, in powder, half an ounce.
— Calcined magnesia, one ounce.
— Powdered ginger, one dram.
Mix the ingredients well together in a mortar.

This preparation is well known by the name of Gregory's mixture. The dose is from a tea-spoonful to a large dessert-spoonful.

Infant's Powder.

Take of Calcined magnesia, five grains.
— Turkey rhubarb in powder, four grains.
— Mix.
This quantity is the proper dose for an infant under eight months.

Compound Powder of Soda and Rhubarb.

Take of Carbonate of soda, ten grains.
— Rhubarb powder, a scruple.
Mix, and form one dose.
This is an antacid, and gentle laxative.

Compound Ipecacuanha Powder.

Take of Ipecacuanha powder, one dram.
— Opium in powder, one dram.
— Sulphate of potass, eight drams.
Rub these well together into a fine powder.

This is used in doses of from five to ten grains, as a diaphoretic or sudorific. See article on *Dover's Powder*.

Compound Jalap Powder.

Take of Powder of jalap, half an ounce.
— Cream of tartar, one ounce.
Rub them well together.

This is an excellent cooling laxative, in doses of half a dram to a dram.

IX.—CONSERVES, ELECTUARIES, AND CONFECTIONS.

Almond Confection.

Take of Sweet almonds, one ounce.
— Gum Arabic in powder, one dram.
— Refined sugar, half an ounce.

First blanch the almonds, and then beat all the ingredients into a mass, by rubbing and beating them in a mortar.

This is a convenient confection, for, by rubbing a little bit of it with water in a mortar, we can at once form almond emulsion, which is often useful as a vehicle for other remedies, such as camphor, &c.

Electuary of Senna.

Take of Senna leaves in fine powder, one ounce and
— a half.
— Pulp of French prunes, or figs, three ounces.
— —— Tamarinds, six drams.
— Molasses, ten ounces.
— Oil of carraway, forty drops.

Boil the pulps in the molasses, over a gentle fire, to the thickness of honey, then add the powder gradually to the syrup, mixing them in a mortar, and when cool add the oil of carraway, and rub all the ingredients intimately together again.

This is an excellent laxative for persons of a costive habit, and may be taken in doses of the size of a nutmeg or larger, according to its effect on the individual.

The conserves of roses and the electuary of catechu, both of which should be kept in the domestic medicine chest, require so much trouble to prepare them, that it will be better to buy them ready prepared by the chemist, and keep them in covered pots.

X.—PILLS.

In the article *Pills* we have already given general directions regarding their preparation, and the kind of medicines which are best exhibited under this form.

We may here add that pill masses should be prepared only in small quantities at a time, that they ought to be of the consistence of a firm paste, and that a single pill should never exceed five grains in weight.

The best powder in which to roll pills so as to prevent them flattening or sticking together, is finely powdered starch.

Aloetic Pills.

Take of Best powdered aloes, one dram.
— Spanish soap, one dram.
— Oil of carraway, five drops.
Mix intimately, then beat them together in a mortar, so as to form a mass, which is to be divided into twenty-four pills. Two of the pills are to be taken as a dose.

Antibilious Pills.

Take of Barbadoes aloes, in powder, twenty-four grains.
— Scammony, in powder, twelve grains.
— Calomel, twelve grains.
— Extract of chamomile, twelve grains.

Rub the powders well together, then add the extract and beat into a mass, adding a few drops of *mucilage* if necessary, so as to form a mass of proper consistence; which is to be divided into twelve pills, one or two of which may be taken for a dose, at bedtime, and followed by a saline draught next morning. Their name denotes their use.

Asafœtida Pills, with Aloes.

Take of Asafœtida in powder, one scruple.
— Aloetic pill mass, one dram and two scruples.

Beat well together into a mass, and divide into twenty-four pills.

These are useful laxative pills for persons troubled with flatulence. Two may be taken for a dose.

Compound Colocynth Pills.

Take of Socotorine aloes in powder, one dram.
— Scammony in powder, one dram.
— Colocynth pulp, half a dram.
— Sulphate of potass, half a scruple.
— Oil of cloves, ten drops.

Mix, and beat into a mass, which is to be divided into thirty pills. One or two of these are, in general, sufficient for a dose.

Colocynth and Mercurial Alterative Pills.

Take of Compound colocynth pill mass,
— Mercurial or blue pill mass, of each half a dram.

Beat them together, and divide into twelve pills. Two of these are a dose, and should in general be followed by a saline draught.

Copaiba or Capivi Pills, or Capsules.

These are, properly speaking, capsules, and not pills; they are a French preparation, and can be procured from the regular druggist. They consist of the balsam of capivi inclosed in capsules of gum, by which means its taste is disguised. Pills are also sometimes formed with the resin of copaiba.

Dinner Pill.

Take of Powdered aloes, thirty-six grains.
— Gum mastic, twelve grains.
— Extract of chamomile, twelve grains.
— Oil of carraway, five drops.

Beat into a mass with a little spirit of wine. One or two of these pills may be taken a quarter of an hour before dinner.

Compound Iron Pills.

Take of Sulphate of iron in fine powder,
— Barbadoes aloes in fine powder,
— Cayenne pepper in powder, of each twelve grains.

Mix these well together in a mortar, and add extract of gentian, twelve grains, and beat them into a mass, and divide into twelve pills.

These are very useful pills in those cases of chlorosis and absence of the menstrual discharge, where iron and stimulants are indicated; but of course improper for patients of a plethoric habit.

Plummer's Alterative Pills.

Take of Calomel,
— Precipitated sulphuret of antimony, of each half a dram.
— Guiac in powder, one dram.

Rub them well together, adding a few drops of spirits, and as much molasses as will form them into a mass, which is to be divided into thirty pills. See article *Plummer's Pills*, in Cyclopedia.

Rhubarb Pills.

Take of Rhubarb in powder, one dram.
— Aloes in powder, forty-five grains.
— Myrrh in powder, thirty grains.
— Oil of peppermint, five drops.

Mix, and beat into a mass, and divide into twenty-four pills.

This pill is intended for a warm purgative, and stomachic. The dose is from two to four pills.

Squill Pills.

Take of Powder of dried squill roots, twelve grains.
— Gum ammoniac, twenty-four grains.
— Ginger in powder, twelve grains.
— Extract of liquorice, twelve grains.

First mix the powders, and then form them into a mass, with the liquorice previously softened by the addition of a little water. Divide the mass into twelve pills. One of these pills may be given twice or thrice a-day.

Compound Pills of Sugar of Lead, and Opium.

Take of Sugar of lead,
— Opium in fine powder, each six grains.

Rub them well together, and form into a mass, with a little conserve of roses, which is to be divided into six pills.

These pills are powerfully astringent, and are very useful in cases of internal hemorrhage, such as spitting and vomiting of blood, and in some severe cases of uterine hemorrhage, also in cases of excessive evacuations of any kind; but great caution must be used in prescribing such a powerful remedy.

XI.—POULTICES, OR CATAPLASMS.

These are remedies in such general use, that we need give but a very short description of them. They are prepared by boiling the ingredients to a soft tenacious and pulpy consistence, or by adding boiling water to the other ingredients to reduce them to the proper consistence. Poultices are of three kinds, namely, emollient, stimulating, and anodyne.

The emollient are applied to soothe irritable sores, and inflammatory swellings.

The best emollient poultices are,

1st. The common bread and water poultice, prepared by boiling the crumb of bread with water to the proper consistence. 2d. A poultice composed of equal parts of bread crumb and linseed meal and water. 3d. The common oatmeal poultice, or in plain language saltless porridge.

Stimulating poultices are used either to promote suppuration, such as the carrot and turnip poultices, which are made by grating these roots small, and then boiling till they are quite soft, and of the proper consistence. The best poultice of this kind, however, is the simple roasted fig, applied over the part, or the common linseed meal poultice used very warm. The yeast, or fermenting poultice, which is used as a stimulant application to foul or gangrenous sores, is prepared in the following manner.

Take of Flour, one pound.
— Beer yeast, half a pint.

Mix, and expose to gentle heat, till the mass begin to swell. The yeast excites fermentation in the flour, and the whole mass is soon reduced to a thin paste,

and carbonic acid being extricated during the process, acts as a stimulus and antiseptic to the sore.

Under the head of stimulant cataplasms, the mustard poultice is generally included. This, our readers are already aware, is used to excite irritation on the surface of the body. It is generally prepared by mixing two parts of strong mustard with one of bread crumb and flour, and brought to the proper consistence by adding vinegar, or spirits. It is more rapid in its action than the fly blister.

Anodyne poultices are applied to tumours and inflammatory swellings to allay pain. Those most frequently used are the hemlock and henbane; they are prepared by adding boiling water to the powder of these plants, so as to form a pultaceous mass. In some cases, a decoction of opium instead of simple boiling water is added to the powder.

The sugar of lead, or cooling poultice, is made by adding solution of sugar of lead to the common emollient bread poultice.

XII.—CERATES, OR OINTMENTS AND LINIMENTS.

For the general directions for preparing these, see the articles *Cerates* and *Liniments*.

Simple Ointment or Cerate.

Take of Olive oil, an ounce and a half.
— White wax, six drams.
— Spermaceti, two drams.

Melt the wax and spermaceti in the oil over a gentle fire, or in a water bath, and continue stirring it till it becomes quite stiff on cooling.

Resinous Ointment.

Take of Hogs' lard, two ounces.
— Yellow resin, ten drams.
— Yellow wax, half an ounce.

Melt, and stir as directed in the recipe for simple ointment.

Sabine ointment.

Take of Fresh savine leaves, bruised, half an ounce.
— Hogs' lard, one ounce.
— Yellow wax, half an ounce.

Boil the leaves in the lard till they become crisp, then filter through gauze, squeezing the leaves; lastly, add the wax, and when melted, stir till the ointment cools.

This is used as an issue ointment, for dressing blisters and other sores, to keep up the discharge.

Sulphur Ointment.

Take of Hog's lard, eight ounces.
— Sublimed sulphur, two ounces.

Mix them thoroughly. This is used as an external application in itch, and other cutaneous diseases.

Tartar Emetic, Ointment, or Liniment.

Take of tartar emetic, one dram.
— White sugar, half a dram.

Rub them well together in a mortar, till the sugar is reduced to a fine powder, then add simple ointment one ounce, and mix all the ingredients well together. This ointment or liniment, is used as a counter-irritant, and will be found frequently prescribed in the pages of the Cyclopedia. A bit the size of a small nut is rubbed in twice a day, till a pustular eruption appears. This is preferable to the croton oil ointment as a domestic remedy.

Turpentine Liniment.

Take of Resinous ointment, one ounce.
— Oil of turpentine, half an ounce.

Melt the ointment, and then add the turpentine gradually, rubbing them together in a slightly heated mortar.

This is frequently used for rubbing joints, and other parts affected with rheumatism. It is also used as a stimulating application to indolent, or sphacelating sores, and is especially useful in the weak sores which follow burns.

Lime Water Liniment.

Take of Lime water, eight ounces.
— Olive, or linseed oil, six ounces.

Mix well by shaking.

This is well known by the name of Carron oil. It is a very useful application to scalds if applied before the blisters rise, or after the water has been let out from the blister by small punctures without detaching the cuticle. It is applied on rags, and should be frequently renewed. It is also applied to some irritable sores and eruptions.

The ointments mentioned in the subjoined list should also be kept in the domestic medicine chest, but should never be prepared, except by a regular apothecary:

Blue or mercurial ointment.
Citrine or nitrate of mercury ointment.
Red precipitate of mercury ointment.

These, and indeed all other ointments, should be kept in covered pots.

TABLE OF DOSES OF MEDICINE.

Remarks regarding the doses of medicine.

As most of the doses of medicines prescribed throughout the work (with the exception of those cases where special mention is made of the age, or when the disease is one of infancy), are intended for adults, we have thought it necessary to add the following table, taken from the late Dr Duncan's Dispensatory, to enable our readers to proportion the doses to children, and old people.

Ages.		Proportionate doses.	
Months	2	$\frac{1}{15}$	of adult dose.
—	7	$\frac{1}{12}$	
—	14	$\frac{1}{8}$	
—	28	$\frac{1}{5}$	
Years	3	$\frac{1}{4}$	
—	5	$\frac{1}{3}$	
—	7	$\frac{1}{2}$	
—	14	$\frac{2}{3}$	
—	63	1	or adult dose.
—	77	$\frac{5}{6}$	
—	100	$\frac{4}{6}$	

We need scarcely say that doses of medicine should always be weighed or measured, never guessed. A tea spoonful is considered equal to one dram of fluid measure, and a table-spoonful to half an ounce.

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